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

FORM 10-Q

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

For the quarterly period ended September 30, 2019

OR

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

For the transition period from_____ to _____

Commission file number 001-36548

ATARA BIOTHERAPEUTICS, INC.

(Exact name of Registrant as specified in its Charter)

Delaware	**46-0920988**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
611 Gateway Blvd., Suite 900 South San Francisco, CA	**94080**
(Address of principal executive offices)	**(Zip Code)**

(Registrant's telephone number, including area code: (650) 278-8930

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the 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 ☒

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 $0.0001 per share	**ATRA**	**The Nasdaq Stock Market LLC**

The number of outstanding shares of the Registrant's Common Stock as of October 31, 2019 was54,150,553 shares.

ATARA BIOTHERAPEUTICS, INC.

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ATARA BIOTHERAPEUTICS, INC.
Condensed Consolidated Balance Sheets
(Unaudited)
(In thousands, except per share amounts)

	September 30, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	$ 94,431	$ 60,698
Short-term investments	188,491	248,933
Restricted cash - short-term	194	194
Prepaid expenses and other current assets	10,302	11,664
Total current assets	293,418	321,489
Property and equipment, net	55,697	68,576
Operating lease assets	14,204	—
Restricted cash - long-term	1,200	1,200
Other assets	266	574
Total assets	$ 364,785	$ 391,839
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 5,155	$ 3,719
Accrued compensation	12,897	10,636
Accrued research and development expenses	6,172	19,210
Other current liabilities	6,482	6,414
Total current liabilities	30,706	39,979
Operating lease liabilities - long-term	14,532	—
Other long-term liabilities	1,105	13,003
Total liabilities	46,343	52,982
Commitments and contingencies (Note 8)		
Stockholders' equity:		
Common stock—$0.0001 par value, 500,000 shares authorized as of September 30, 2019 and December 31, 2018, respectively; 54,125 and 45,951 shares issued and outstanding as of September 30, 2019 and December 31, 2018, respectively	5	5
Additional paid-in capital	1,057,669	866,541
Accumulated other comprehensive income (loss)	233	(340)
Accumulated deficit	(739,465)	(527,349)
Total stockholders' equity	318,442	338,857
Total liabilities and stockholders' equity	$ 364,785	$ 391,839

See accompanying notes.

ATARA BIOTHERAPEUTICS, INC.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(Unaudited)
(In thousands, except per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Operating expenses:				
Research and development	$ 53,538	$ 43,355	$ 154,457	$ 105,202
General and administrative	19,018	16,865	61,525	50,093
Total operating expenses	72,556	60,220	215,982	155,295
Loss from operations	(72,556)	(60,220)	(215,982)	(155,295)
Interest and other income, net	661	1,859	3,502	4,611
Loss before provision for income taxes	(71,895)	(58,361)	(212,480)	(150,684)
Provision for income taxes	—	—	—	3
Net loss	$ (71,895)	$ (58,361)	$ (212,480)	$ (150,687)
Other comprehensive loss:				
Unrealized gain (loss) on available-for-sale securities	60	56	573	(298)
Comprehensive loss	$ (71,835)	$ (58,305)	$ (211,907)	$ (150,985)
Net loss per common share:				
Basic and diluted net loss per common share	$ (1.31)	$ (1.29)	$ (4.32)	$ (3.49)
Weighted-average shares outstanding used to calculate basic and diluted net loss per common share	54,920	45,406	49,176	43,148

See accompanying notes.

ATARA BIOTHERAPEUTICS, INC.
Condensed Consolidated Statements of Changes in Stockholders' Equity
(Unaudited)
(In thousands)

For the Nine Months Ended September 30, 2019	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
Balance as of December 31, 2018	45,951	$ 5	$ 866,541	$ (340)	$ (527,349)	$ 338,857
Effect of the adoption of ASC topic 842 (Leases)	—	—	—	—	364	364
Balance as of January 1, 2019	45,951	$ 5	$ 866,541	$ (340)	$ (526,985)	$ 339,221
RSU settlements, net of shares withheld	197	—	(4,575)	—	—	(4,575)
Issuance of common stock pursuant to employee stock awards	159	—	2,898	—	—	2,898
Stock-based compensation expense	—	—	12,269	—	—	12,269
Net loss	—	—	—	—	(66,257)	(66,257)
Unrealized gain on available-for-sale securities	—	—	—	378	—	378
Balance as of March 31, 2019	46,307	5	877,133	38	(593,242)	283,934
Issuance of common stock through ATM Facility, net of commissions and offering costs of $338	359	—	7,630	—	—	7,630
RSU settlements, net of shares withheld	120	—	(2,095)	—	—	(2,095)
Issuance of common stock pursuant to employee stock awards	97	—	1,802	—	—	1,802
Stock-based compensation expense	—	—	15,201	—	—	15,201
Net loss	—	—	—	—	(74,328)	(74,328)
Unrealized gain on available-for-sale securities	—	—	—	135	—	135
Balance as of June 30, 2019	46,883	5	899,671	173	(667,570)	232,279
Issuance of common stock and pre-funded warrants through underwritten offerings, net of offering costs of $288	6,872	—	140,711	—	—	140,711
Issuance of common stock through ATM Facility, net of commissions and offering costs of $155	327	—	5,000	—	—	5,000
RSU settlements, net of shares withheld	32	—	(25)	—	—	(25)
Issuance of common stock pursuant to employee stock awards	11	—	160	—	—	160
Stock-based compensation expense	—	—	12,152	—	—	12,152
Net loss	—	—	—	—	(71,895)	(71,895)
Unrealized gain on available-for-sale securities	—	—	—	60	—	60
Balance as of September 30, 2019	$ 54,125	$ 5	$ 1,057,669	$ 233	$ (739,465)	$ 318,442

For the Nine Months Ended September 30, 2018	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
Balance as of December 31, 2017	30,730	$ 3	$ 474,662	$ (151)	$ (296,650)	$ 177,864
Issuance of common stock through underwritten offerings, net of offering costs of $526	12,604	1	293,288	—	—	293,289
RSU settlements, net of shares withheld	250	—	(3,363)	—	—	(3,363)
Issuance of common stock pursuant to employee stock awards	309	—	6,196	—	—	6,196
Stock-based compensation expense	—	—	7,014	—	—	7,014
Net loss	—	—	—	—	(41,443)	(41,443)
Unrealized loss on available-for-sale securities	—	—	—	(373)	—	(373)
Balance as of March 31, 2018	43,893	4	777,797	(524)	(338,093)	439,184
Issuance of common stock through ATM Facility, net of commissions and offering costs of $1,310	1,008	1	47,586	—	—	47,587
RSU settlements, net of shares withheld	42	—	(67)	—	—	(67)
Issuance of common stock pursuant to employee stock awards	391	—	8,661	—	—	8,661
Stock-based compensation expense	—	—	7,998	—	—	7,998
Net loss	—	—	—	—	(50,883)	(50,883)
Unrealized gain on available-for-sale securities	—	—	—	19	—	19
Balance as of June 30, 2018	45,334	5	841,975	(505)	(388,976)	452,499
RSU settlements, net of shares withheld	153	—	(4,063)	—	—	(4,063)
Issuance of common stock pursuant to employee stock awards	158	—	3,671	—	—	3,671
Stock-based compensation expense	—	—	9,252	—	—	9,252
Net loss	—	—	—	—	(58,361)	(58,361)
Unrealized gain on available-for-sale securities	—	—	—	56	—	56
Balance as of September 30, 2018	45,645	$ 5	$ 850,835	$ (449)	$ (447,337)	$ 403,054

See accompanying notes.

ATARA BIOTHERAPEUTICS, INC.
Condensed Consolidated Statements of Cash Flows
(Unaudited)
(In thousands)

	Nine Months Ended September 30,	
	2019	**2018**
Operating activities		
Net loss	$ (212,480)	$ (150,687)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	39,622	24,264
Depreciation and amortization expense	5,174	2,254
Accretion of investment discounts	(1,177)	(1,339)
Loss on disposals of property and equipment	927	—
Non-cash operating lease expense	768	—
Non-cash interest expense	—	211
Asset retirement obligation accretion expense	53	32
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	1,204	(2,339)
Operating lease assets	238	—
Other assets	308	(225)
Accounts payable	1,527	116
Accrued compensation	2,261	3,408
Accrued research and development expenses	(13,038)	(203)
Other current liabilities	(1,836)	2,063
Operating lease liabilities	(487)	—
Other long-term liabilities	—	92
Net cash used in operating activities	(176,936)	(122,353)
Investing activities		
Purchases of short-term investments	(147,187)	(402,621)
Proceeds from maturities and sales of short-term investments	209,379	192,020
Purchases of property and equipment	(3,021)	(31,756)
Proceeds from sale of property and equipment	161	—
Net cash provided by (used in) investing activities	59,332	(242,357)
Financing activities		
Proceeds from sale of common stock and pre-funded warrants in underwritten offerings, net	140,888	293,290
Proceeds from issuance of common stock through ATM facility, net	12,630	47,586
Proceeds from employee stock awards	4,859	18,528
Taxes paid related to net share settlement of restricted stock units	(6,695)	(7,493)
Principal payments on finance and capital lease obligations	(345)	(396)
Net cash provided by financing activities	151,337	351,515
Increase (decrease) in cash, cash equivalents and restricted cash	33,733	(13,195)
Cash, cash equivalents and restricted cash at beginning of period	62,092	80,617
Cash, cash equivalents and restricted cash at end of period	$ 95,825	$ 67,422
Non-cash investing and financing activities		
Property and equipment purchases included in accounts payable and other accrued liabilities	$ 699	$ 3,973
Capitalized lease obligations	$ —	$ 441
Property & equipment acquired under capital leases	$ —	$ 191
Asset retirement cost	$ —	$ 88
Interest capitalized during construction period for build-to-suit lease transaction	$ —	$ 77
Supplemental cash flow disclosure		
Cash paid for interest	$ 43	$ 110

See accompanying notes.

1. Description of Business

Atara Biotherapeutics, Inc. ("Atara", "we", "our" or "the Company") was incorporated in August 2012 in Delaware. Atara is a leading off-the-shelf, allogeneic T-cell immunotherapy company that is developing novel treatments for patients with cancer, autoimmune and viral diseases. We have several T-cell immunotherapies in clinical development and are progressing a next-generation allogeneic chimeric antigen receptor T-cell ("CAR T") program.

We licensed rights to T-cell product candidates from Memorial Sloan Kettering Cancer Center ("MSK") in June 2015 and licensed rights related to our next-generation CAR T programs from MSK in May 2018 and December 2018 and from Moffitt Cancer Center in August 2018. Additionally, we licensed rights to know-how and technology from the Council of the Queensland Institute of Medical Research ("QIMR Berghofer") in October 2015, September 2016 and June 2018. See Note 6 for further information.

We have incurred significant operating losses since inception and have relied on public and private equity financings to fund our operations. As of September 30, 2019, we had an accumulated deficit of $739.5 million. As we continue to incur losses, our transition to profitability will depend on the successful development, approval and commercialization of product candidates and on the achievement of sufficient revenues to support our cost structure. We may never achieve profitability, and unless and until we do, we will need to continue to raise additional capital. Management expects that our cash, cash equivalents and short-term investments will be sufficient to fund our planned operations into 2021.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements include the accounts of Atara and its wholly-owned subsidiaries and have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and the requirements of the Securities and Exchange Commission ("SEC") for interim reporting. As permitted under those rules, certain footnotes or other financial information that are normally required by U.S. GAAP can be condensed or omitted. These condensed consolidated financial statements have been prepared on the same basis as the Company's annual consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2018, except for the recognition of operating lease assets and operating lease liabilities effective January 1, 2019, in accordance with newly-adopted accounting pronouncements relating to leases as discussed below. In the opinion of management, the condensed consolidated financial statements reflect all adjustments, consisting only of normal recurring adjustments, which are necessary for a fair presentation of the Company's consolidated financial statements. The results of operations for any interim period are not necessarily indicative of the results to be expected for the full year or any other future period. The condensed consolidated balance sheet as of December 31, 2018 has been derived from audited consolidated financial statements at that date but does not include all of the information required by U.S. GAAP for complete consolidated financial statements.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates, assumptions, and judgments that affect the amounts reported in the financial statements and accompanying notes. Significant estimates relied upon in preparing these financial statements include estimates related to clinical trial and other accruals, stock-based compensation expense and income taxes. Actual results could differ materially from those estimates.

Leases

We lease office space in multiple locations. We determine if an arrangement is a lease at inception. Operating leases are included in operating lease assets, other current liabilities, and operating lease liabilities on our condensed consolidated balance sheets. Leases with an initial term of 12 months or less are not recorded on the balance sheet; we recognize lease expense for these leases on a straight-line basis over the lease term. Finance leases are included in property and equipment, other current liabilities, and other long-term liabilities on our condensed consolidated balance sheets.

Operating lease assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of future payments. The incremental borrowing rate for our leases is determined based on lease term and currency in which lease payments are made, adjusted for impacts of collateral. The operating lease asset also includes any lease payments made and excludes lease incentives and initial direct costs incurred. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

Our facilities and equipment operating leases have lease and non-lease components and we have made a policy election to account for the lease and non-lease components as a single lease component.

Through December 31, 2018, the leases were reviewed for classification as operating, capital or build-to-suit leases. For operating leases, rent was recognized on a straight-line basis over the lease period. For capital leases, we recorded the leased asset with a corresponding liability for principal and interest. Payments were recorded as reductions to these liabilities with interest being charged to interest expense in our condensed consolidated statements of operations and comprehensive loss.

We analyzed the nature of the renovations and our involvement during the construction period of our manufacturing facility and determined that we were the deemed "owner" of the construction project during the construction period. As a result, we were required to capitalize the fair value of the building as well as the construction costs incurred on our condensed consolidated balance sheet along with a corresponding financing liability for landlord-paid construction costs (i.e. "build-to-suit" accounting).

Once construction was complete, the Company considered the requirements for sale-leaseback accounting treatment, including evaluating whether all risks of ownership have been transferred back to the landlord, as evidenced by a lack of continuing involvement in the leased property. Since the arrangement did not qualify for sale-leaseback accounting treatment, the building asset remained on the Company's condensed consolidated balance sheets at its historical cost, and such asset was depreciated over its estimated useful life. The Company bifurcated its lease payments into a portion allocated to the building and a portion allocated to the parcel of land on which the building has been built. The portion of the lease payments allocated to the land was treated for accounting purposes as operating lease payments, and therefore was recorded as rent expense in the condensed consolidated statements of operations and comprehensive loss. The portion of the lease payments allocated to the building was further bifurcated into a portion allocated to interest expense and a portion allocated to reduce the build-to-suit lease obligation. The initial recording of these assets and liabilities were classified as non-cash investing and financing items, respectively, for purposes of the condensed consolidated statements of cash flows. The build-to-suit asset and corresponding lease obligation was derecognized upon adoption of the new lease standard as we did not control the building during the construction period.

Recent Accounting Pronouncements

The Company considers the applicability and impact of any Accounting Standards Update ("ASU") issued by the Financial Accounting Standards Board ("FASB"). ASUs not listed below were assessed and determined to be either not applicable or are expected to have minimal impact on our consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13,*Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments*, which was clarified and amended by the issuances of ASUs 2018-19, 2019-04 and 2019-05 in November 2018, April 2019 and May 2019, respectively. The new standard requires that expected credit losses relating to financial assets measured on an amortized cost basis are measured using an expected-loss model, replacing the current incurred-loss model, and recorded through an allowance for credit losses. The guidance also establishes a new impairment model for available-for-sale debt securities. We will adopt the new standard and the related amendments on the effective date of January 1, 2020. We do not expect the adoption to have a material impact on our consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15,*Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* (ASU 2018-15), which clarifies the accounting for implementation costs in cloud computing arrangements. The new standard is effective for fiscal years and interim periods within those fiscal years for the Company on January 1, 2020. We are currently assessing the potential effect the new standard will have on our consolidated financial statements.

Adoption of New Accounting Pronouncements

We adopted ASU No. 2016-02, Leases (Topic 842), as of January 1, 2019, using the optional transition method, which allows for the initial application of the new accounting standard at the adoption date and the recognition of a cumulative-effect adjustment to the opening balance of retained earnings as of the beginning of the period of adoption. In addition, we elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed us to carry forward the historical lease classification. In addition, we elected the hindsight practical expedient to determine the lease term for existing leases.

Adoption of the new standard resulted in the recording of additional operating lease assets and operating lease liabilities of $14.3 million and $15.3 million, respectively, as of January 1, 2019. This was partially offset by de-recognition of the build-to-suit asset and corresponding lease obligation of $10.3 million for our Thousand Oaks manufacturing facility lease, as we did not control the building during the construction period (see Note 7). The cumulative effect adjustment to the opening balance of accumulated deficit was a decrease of $0.4 million. The standard did not have a significant impact on our condensed consolidated statements of operations and comprehensive loss, changes in stockholders' equity, and cash flow for the three and nine months ended September 30, 2019 and 2018.

3. Net Loss per Common Share

Basic net loss per common share is calculated by dividing net loss by the weighted-average number of shares of common stock and pre-funded warrants outstanding during the period, without consideration of common share equivalents. Diluted net loss per common share is computed by dividing net loss by the weighted-average number of shares of common stock, pre-funded warrants and common share equivalents outstanding for the period. The pre-funded warrants are included in the computation of basic and diluted net loss per common share as the exercise price is negligible and the pre-funded warrants are fully vested and exercisable. Common share equivalents are only included in the calculation of diluted net loss per common share when their effect is dilutive.

Potential dilutive securities, which include, unvested restricted stock units ("RSUs"), vested and unvested options to purchase common stock and shares to be issued under our employee stock purchase plan ("ESPP") have been excluded from the computation of diluted net loss per share as the effect is antidilutive. Therefore, the denominator used to calculate both basic and diluted net loss per common share is the same in all periods presented.

The following table represents the potential common shares issuable pursuant to outstanding securities as of the related period end dates that were excluded from the computation of diluted net loss per common share as their inclusion would have an antidilutive effect:

	As of September 30,	
	2019	2018
Unvested RSUs	2,001,218	1,431,891
Vested and unvested options	7,364,588	6,332,199
ESPP share purchase rights	75,893	23,509
Total	9,441,699	7,787,599

4. Financial Instruments

Our financial assets are measured at fair valueon a recurring basis using the following hierarchy to prioritize valuation inputs, in accordance with applicable U.S. GAAP:

Level 1:Quoted prices in active markets for identical assets or liabilities that we have the ability to access

Level 2:Observable market-based inputs or unobservable inputs that are corroborated by market data such as quoted prices, interest rates and yield curves

Level 3:Inputs that are unobservable data points that are not corroborated by market data

We review the fair value hierarchy classification on a quarterly basis. Changes in the ability to observe valuation inputs may result in a reclassification of levels of certain securities within the fair value hierarchy. We recognize transfers into and out of levels within the fair value hierarchy in the period in which the actual event or change in circumstances that caused the transfer occurs. There have been no transfers between Level 1, Level 2 and Level 3 in any periods presented.

Financial assets and liabilities are considered Level 2 when their fair values are determined using inputs that are observable in the market or can be derived principally from or corroborated by observable market data such as pricing for similar securities, recently executed transactions, cash flow models with yield curves, and benchmark securities. In addition, Level 2 financial instruments are valued using comparisons to like-kind financial instruments and models that use readily observable market data as their basis. U.S. Treasury, government agency and corporate debt obligations, commercial paper and asset-backed securities are valued primarily using market prices of comparable securities, bid/ask quotes, interest rate yields and prepayment spreads and are included in Level 2.

Financial assets and liabilities are considered Level 3 when their fair values are determined using pricing models, discounted cash flow methodologies, or similar techniques, and at least one significant model assumption or input is unobservable. We have no Level 3 financial assets or liabilities.

The following tables summarize the estimated fair value and related valuation input hierarchy of our available-for-sale securities as of each period end:

As of September 30, 2019:	Input Level	Total Amortized Cost	Total Unrealized Gain	Total Unrealized Loss	Total Estimated Fair Value
			(in thousands)		
Money market funds	Level 1	$ 43,210	$ —	$ —	$ 43,210
U.S. Treasury obligations	Level 2	117,946	38	—	117,984
Government agency obligations	Level 2	4,524	2	(1)	4,525
Corporate debt obligations	Level 2	70,385	190	(1)	70,574
Commercial paper	Level 2	36,522	—	—	36,522
Asset-backed securities	Level 2	7,341	5	—	7,346
Certificate of deposit	Level 2	500	—	—	500
Total available-for-sale securities		280,428	235	(2)	280,661
Less: amounts classified as cash equivalents		(92,167)	(3)	—	(92,170)
Amounts classified as short-term investments		$ 188,261	$ 232	$ (2)	$ 188,491

As of December 31, 2018:	Input Level	Total Amortized Cost	Total Unrealized Gain	Total Unrealized Loss	Total Estimated Fair Value
			(in thousands)		
Money market funds	Level 1	$ 38,708	$ —	$ —	$ 38,708
U.S. Treasury obligations	Level 2	111,164	4	(80)	111,088
Government agency obligations	Level 2	15,206	1	(32)	15,175
Corporate debt obligations	Level 2	121,017	15	(217)	120,815
Commercial paper	Level 2	12,935	—	—	12,935
Asset-backed securities	Level 2	11,894	—	(31)	11,863
Total available-for-sale securities		310,924	20	(360)	310,584
Less: amounts classified as cash equivalents		(61,651)	—	—	(61,651)
Amounts classified as short-term investments		$ 249,273	$ 20	$ (360)	$ 248,933

The amortized cost and fair value of our available-for-sale securities by contractual maturity were as follows:

	As of September 30, 2019		As of December 31, 2018	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
	(in thousands)		(in thousands)	
Maturing within one year	$ 246,860	$ 246,976	$ 287,755	$ 287,469
Maturing in one to five years	33,568	33,685	23,169	23,115
Total available-for-sale securities	$ 280,428	$ 280,661	$ 310,924	$ 310,584

As of September 30, 2019, certain available-for-sale securities had been in a continuous unrealized loss position, each for less than twelve months. As of this date, no significant facts or circumstances were present to indicate a deterioration in the creditworthiness of the respective issuers, and the Company has no requirement or intention to sell these securities before maturity or recovery of their amortized cost basis. During the three and nine months ended September 30, 2019 and 2018, we did not recognize any other-than-temporary impairment losses.

In addition, restricted cash collateralized by money market funds is a financial asset measured at fair value and is a Level 1 financial instrument under the fair value hierarchy. As of September 30, 2019 and December 31, 2018, restricted cash was $1.4 million.

The following table provides a reconciliation of cash, cash equivalents and restricted cash within the condensed consolidated balance sheets that sum to the total of the same such amounts in the condensed consolidated statement of cash flows:

	September 30, 2019	December 31, 2018
	(in thousands)	
Cash and cash equivalents	$ 94,431	$ 60,698
Restricted cash - short term	194	194
Restricted cash - long term	1,200	1,200
Total cash, cash equivalents and restricted cash	$ 95,825	$ 62,092

5. Property and Equipment

Property and equipment consisted of the following as of each period end:

	September 30, 2019	December 31, 2018
	(in thousands)	
Leasehold improvements	$ 49,028	$ 47,609
Build-to-suit asset (see Note 7)	—	10,686
Construction in progress	1,868	4,682
Computer equipment and software	3,323	3,049
Lab equipment	5,801	3,019
Machinery and equipment	3,890	2,980
Furniture and fixtures	1,674	1,628
Property and equipment, gross	65,584	73,653
Accumulated depreciation and amortization	(9,887)	(5,077)
Property and equipment, net	$ 55,697	$ 68,576

Construction in progress represents capitalized costs for our manufacturing facility in Thousand Oaks, California and capitalizable costs incurred for equipment held at our facilities. Depreciation and amortization expense was $1.8 million and $1.2 million for the three months ended September 30, 2019 and 2018, respectively and $5.2 million and $2.3 million for the nine months ended September 30, 2019 and 2018, respectively.

6. License and Collaboration Agreements

MSK Agreements – In June 2015, we entered into an exclusive license agreement with MSK for three clinical stage T-cell therapiesIn connection with the execution of the agreement, the Company paid $4.5 million in cash to MSK.

We are required to make additional payments of up to $33.0 million to MSK based on achievement of specified regulatory and sales-related milestones, as well as mid-single-digit percentage tiered royalty payments based on future sales of products resulting from the development of the licensed product candidates, if any.In addition, under certain circumstances, we are required to make certain minimum annual royalty payments to MSK, which are creditable against earned royalties owed for the same annual period. We are also required to pay a low double-digit percentage of any consideration we receive for sublicensing the licensed rights. The license agreement expires on a product-by-product and country-by-country basis on the later of: (i) expiration of the last licensed patent rights related to each licensed product, (ii) expiration of any market exclusivity period granted by law with respect to each licensed product, and (iii) a specified number of years after the first commercial sale of the licensed product in each country. Upon expiration of the license agreement, Atara will retain non-exclusive rights to the licensed products.

In December 2018, we licensed additional technology from MSK. In connection with the effectiveness of this license agreement, we made upfront cash payments of $12.5 million in the first quarter of 2019, which were recorded as research and development expense in our consolidated statement of operations and comprehensive loss in the fourth quarter of 2018. We are obligated to make additional milestone payments based on achievement of specified development, regulatory and sales-related milestones as well as mid-single-digit percentage tiered royalty payments based on future sales of products resulting from the development of the licensed product candidates, if any.

QIMR Berghofer Agreements – In October 2015, we entered into an exclusive license agreement and a research and development collaboration agreement with QIMR Berghofer. In consideration for the exclusive license, the Company paid $3.0 million in cash to QIMR Berghofer.

Under the terms of the license agreement, we obtained an exclusive, worldwide license to develop and commercialize allogeneic T-cell therapy programs utilizing technology and know-how developed by QIMR Berghofer. In September 2016, the exclusive license agreement and research and development collaboration agreement were amended and restated and they were further amended and restated in August 2019. Under the amended and restated agreements, we obtained an exclusive, worldwide license to develop and commercialize additional T-cell programs as well as the option to license additional technology in exchange for $3.3 million in cash, which was recorded as research and development expense in our condensed consolidated statement of operations and comprehensive loss in the third quarter of 2016. We exercised this option in June 2018. The amended and restated license agreement also provides for various milestone and royalty payments to QIMR Berghofer based on future product sales, if any.

Under the terms of the amended and restated research and development collaboration agreement, we are also required to reimburse the cost of agreed-upon development activities related to programs developed under the collaboration. These payments are expensed on a straight-line basis over the related development periods. The agreement also provides for various milestone payments to QIMR Berghofer based on achievement of certain developmental and regulatory milestones.

From time to time, we have entered into other license and collaboration agreements with other parties. For example, we licensed additional rights related to our next-generation CAR T programs from MSK in May 2018 and from Moffitt Cancer Center in August 2018 and agreed to collaborate in connection with each of these licenses.

Milestones and royalties under each of the above agreements are contingent upon future events and will be recorded as expense when it is probable that the milestones will be achieved or royalties are due. As of September 30, 2019 and December 31, 2018, there were no outstanding obligations for milestones and royalties under our license and collaboration agreements.

Cognate Agreement - In August 2015, Atara entered into a Development and Manufacturing Services Agreement (the “Manufacturing Agreement”) with Cognate Bioservices, Inc. (“Cognate”). The Manufacturing Agreement was amended in December 2017 to provide for additional rights for Atara in relation to the conduct of the services and amended again in May 2018, November 2018 and June 2019 to modify certain financial and other provisions with respect to manufacturing services. Pursuant to the Manufacturing Agreement, Cognate provides process development and manufacturing services for certain Atara product candidates.

7. Leases

We lease our corporate headquarters in South San Francisco, California under a non-cancellable lease agreement that expires in April 2021. In connection with the lease, we are required to maintain a letter of credit in the amount of $0.2 million to the landlord, which expires and is renewed every 12 months, and is classified as restricted cash in our condensed consolidated balance sheet. In November 2018, we entered into a lease agreement for additional office space in Thousand Oaks, California that expires in February 2026. Additionally, we entered into a new lease for our office and lab space in Aurora, Colorado, effective May 2019, that expires in April 2024.

In February 2017, we entered into a lease agreement for approximately90,580 square feet of office, lab and cellular therapy manufacturing space in Thousand Oaks, California. The initial 15-year term of the lease commenced on February 15, 2018, upon the substantial completion of landlord's work as defined under the agreement. The contractual obligations during the initial term are $16.4 million in aggregate. We have the option to extend the lease for two additional periods of ten andnine years, respectively, after the initial term. In connection with the lease, we were required to issue a letter of credit in the amount of $1.2 million to the landlord, which was recorded as long-term restricted cash in our condensed consolidated balance sheet.

Based on the terms of the lease agreement and on our involvement in certain aspects of the construction, we were deemed the owner of the building during the construction period in accordance with U.S. GAAP in effect prior to January 1, 2019. Under this build-to-suit lease arrangement, we recognized construction in progress based on all construction costs incurred by both us and the landlord. We also recognized a financing obligation equal to all costs funded by the landlord.

Due to completion of the construction by the landlord and not having met the criteria for sale-lease back accounting, we transferred the $10.3 million of landlord's construction costs previously capitalized as construction in progress to a build-to-suit asset, and have recognized a corresponding long-term financing obligation for the same amount in long-term liabilities in our condensed consolidated balance sheets. In addition, we recorded $0.3 million of capitalized interest during the construction period through December 31, 2018. A portion of the monthly lease payment was allocated to land rent and recorded as an operating lease expense and the non-interest portion of the amortized lease payments to the landlord related to rent of the building was applied to the lease financing liability.

Future minimum payments under our operating, finance and capital leases as of December 31, 2018 were as follows:

	Operating Leases	Finance Leases	Capital Leases
Years Ending December 31,		(in thousands)	
2019	$ 1,107	$ 934	$ 540
2020	1,666	962	234
2021	1,555	991	29
2022	1,337	1,020	—
2023	1,375	1,051	—
Thereafter	3,122	11,458	—
Total minimum payments	$ 10,162	$ 16,416	$ 803
Less: amount representing interest			(65)
Present value of capital lease obligations			738
Less: current portion			(490)
Capital lease obligation, net of current portion			$ 248

The maturities of lease liabilities under our operating and finance leases as of September 30, 2019 were as follows:

	Operating Leases	Finance Leases
Periods Ending December 31,	(in thousands)	
Remaining 2019	$ 650	$ 151
2020	2,867	236
2021	2,740	30
2022	2,611	—
2023	2,685	—
Thereafter	14,477	—
Total lease payments	$ 26,030	$ 417
Less: amount representing interest	(10,338)	(24)
Present value of lease liabilities	$ 15,692	$ 393
Balance as of September 30, 2019		
Other current liabilities	$ 1,160	$ 308
Operating lease liabilities	14,532	—
Other long-term liabilities	—	85
Total	$ 15,692	$ 393

The components of lease cost were as follows:

	September 30, 2019	
	Three Months Ended	Nine Months Ended
	(in thousands)	
Operating lease cost:		
Operating lease cost	$ 602	$ 1,976
Short-term lease cost	188	583
Total operating lease cost	$ 790	$ 2,559
Finance lease cost:		
Amortization expense	83	$ 250
Interest on lease liabilities	12	43
Total finance lease cost	$ 95	$ 293

Rent expense under operating leases for the three and nine months ended September 30, 2018 was $0.6 million and $1.6 million respectively.

Other information related to leases was as follows:

	Nine Months Ended September 30, 2019 (in thousands, except lease term and discount rate)
Supplemental Cash Flows Information	
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows for operating leases	$ 1,696
Operating cash flows for finance leases	43
Financing cash flows for finance leases	345
Operating lease assets obtained in exchange for lease obligations:	$ 838
Weighted Average Remaining Lease Term	
Operating leases	10.5 years
Finance leases	1.1 years
Weighted Average Discount Rate	
Operating leases	10.4 %
Finance leases	9.9 %

Asset Retirement Obligation

The Company's Asset Retirement Obligation ("ARO") consists of a contractual requirement to remove the tenant improvements at our manufacturing facility in Thousand Oaks, California and restore the facility to a condition specified in the lease agreement. The Company records an estimate of the fair value of its ARO in long-term liabilities in the period incurred. The fair value of the ARO is also capitalized as construction in progress. The fair value of our ARO was estimated by discounting projected cash flows over the estimated life of the related assets using our credit adjusted risk-free rate.

The following table presents the activity for our ARO liabilities:

	ARO Liability (in thousands)
Balance as of December 31, 2018	$ 717
Accretion expense	53
Balance as of September 30, 2019	$ 770

8. Commitments and Contingencies

License and Collaboration Agreements

Potential payments related to our license and collaboration agreements, including milestone and royalty payments, are detailed in Note 6.

Other Research and Development Agreements

We may enter into contracts in the normal course of business with clinical research organizationsfor clinical trials, with contract manufacturing organizations for clinical supplies, and with other vendors for pre-clinical studies, supplies and other services for our operating purposes. These contracts generally provide for termination on notice. As of September 30, 2019 and December 31, 2018, there were no amounts accrued related to contract termination charges.

Indemnification Agreements

In the normal course of business, we enter into contracts and agreements that contain a variety of representations and warranties and provide for indemnification for certain liabilities. The exposure under these agreements is unknown because it involves claims that may be made against us in the future but have not yet been made. To date, we have not paid any claims or been required to defend any action related to our indemnification obligations. However, we may record charges in the future as a result of these indemnification obligations. We also have indemnification obligations to our directors and executive officers for specified events or occurrences, subject to some limits, while they are serving at our request in such capacities. There have been no claims to date and we believe the fair value of these indemnification agreements is minimal. Accordingly, we did not record liabilities for these agreements as of September 30, 2019 and December 31, 2018.

Contingencies

From time to time, we may be involved in legal proceedings, as well as demands, claims and threatened litigation, which arise in the normal course of our business or otherwise. The ultimate outcome of any litigation is uncertain and unfavorable outcomes could have a negative impact on our results of operations and financial condition. Regardless of outcome, litigation can have an adverse impact on us because of the defense costs, diversion of management resources and other factors. We are not currently involved in any material legal proceedings.

9. Stockholders' Equity

Our authorized capital stock consists of 520,000,000 shares, all with a par value of $0.0001 per share, of which 500,000,000 shares are designated as common stock and 20,000,000 shares are designated as preferred stock. There were no shares of preferred stock outstanding as of September 30, 2019 and December 31, 2018.

Equity Offering

On July 18, 2019, we issued and sold 6,871,727 shares of common stock at a public offering price of $15.28 per share and pre-funded warrants to purchase 2,945,026 shares of common stock at an offering price of $15.2799 per warrant in an underwritten public offering pursuant to a shelf registration on Form S-3. We granted the underwriters an option to purchase additional shares of our common stock at a public offering price of $15.28, less underwriting discounts and commissions. This option was not exercised by the underwriters and expired in August 2019. The gross proceeds from this public offering were $150.0 million, resulting in aggregate net proceeds of $140.7 million, after deducting underwriting discounts and commissions and offering expenses payable by us.

Each pre-funded warrant entitles the holder to purchase one share of common stock at an exercise price of $0.0001 per share and expires seven years from the date of issuance. These warrants were recorded as a component of stockholders' equity within additional paid-in capital. Per the terms of the warrant agreement, a holder of the outstanding warrants is not entitled to exercise any portion of any pre-funded warrant if, upon exercise of the warrant, the holder's ownership (together with its affiliates) of our common stock or combined voting power of our securities beneficially owned by such holder (together with its affiliates) would exceed 9.99% after giving effect to the exercise ("Maximum Ownership Percentage"). Upon at least 61 days' prior notice to us by the holder, any holder may increase or decrease the Maximum Ownership Percentage to any other percentage not to exceed 19.99%. As of September 30, 2019, none of the pre-funded warrants have been exercised.

ATM Facility

In February 2019, we entered into a sales agreement (the "ATM Facility") with Cowen and Company, LLC ("Cowen"), which provides for the sale, in our sole discretion, of shares of our common stock, in the aggregate offering price of up to $100.0 million through Cowen, as our sales agent. The issuance and sale of these shares by us pursuant to the ATM Facility are deemed "at the market" offerings as defined in Rule 415 under the Securities Act of 1933, as amended (the "Securities Act"), and are registered under the Securities Act. We pay a commission of up to 3.0% of gross sales proceeds of any common stock sold under the ATM Facility.

During the three months ended September 30, 2019, we sold an aggregate of 326,897 shares of common stock under the ATM Facility, at an average price of $15.77 per share, for gross proceeds of $5.1 million and net proceeds of $5.0 million, after deducting commissions payable by us. For the nine months ended September 30, 2019, we sold an aggregate of 686,131 shares of common stock under the ATM Facility, at an average price of $19.13 per share, for gross proceeds of $13.1 million and net proceeds of $12.6 million, after deducting commissions and other offering expenses payable by us. As of September 30, 2019, $86.9 million of common stock remained available to be sold under this facility, subject to certain conditions as specified in the agreement.

Equity Incentive Plans

Under the terms of the 2014 Equity Incentive Plan, as amended ("2014 EIP"), we may grant stock options, restricted stock awards ("RSAs") and RSUs to employees, directors, consultants and other service providers. RSUs generally vest over four years. Stock options are granted at prices no less than 100% of the estimated fair value of the shares on the date of grant as determined by the board of directors, provided, however, that the exercise price of an option granted to a 10% shareholder cannot be less than 110% of the estimated fair value of the shares on the date of grant. Options granted generally vest over four years and expire in seven to ten years. As of September 30, 2019, a total of 12,101,764 shares of common stock were reserved for issuance under the 2014 EIP, of which 3,631,948 shares were available for future grant and 8,469,816 shares were subject to outstanding options and RSUs.

In February 2018, we adopted the 2018 Inducement Plan ("Inducement Plan"), under which we may grant options, stock appreciation rights, RSAs and RSUs to new employees. As of September 30, 2019, 1,213,760 shares of common stock were reserved for issuance under the Inducement Plan, of which 427,436 shares were available for future grant and 786,324 shares were subject to outstanding options and RSUs.

Restricted Stock Units

The fair value of RSUs is determined as the closing stock price on the date of grant. The weighted average grant date fair value of RSUs granted during the nine months ended September 30, 2019 and 2018 was $27.04 and $34.61, respectively. As of September 30, 2019, there was $45.4 million of unrecognized stock-based compensation expense related to RSUs that is expected to be recognized over a weighted average period of 2.3 years. The aggregate intrinsic value of the RSUs outstanding as of September 30, 2019 was $28.3 million.

The following is a summary of RSU activity under our 2014 EIP and Inducement Plan:

	RSUs	
	Shares	Weighted Average Grant Date Fair Value
Unvested as of December 31, 2018	1,405,460	$ 26.94
Granted	1,591,888	$ 27.04
Forfeited	(435,266)	$ 30.16
Vested	(560,864)	$ 23.89
Outstanding as of September 30, 2019	2,001,218	$ 27.17

Under our RSU net settlement procedures, for most of our employees, we withhold shares at settlement to cover the minimum payroll withholding tax obligations. During the nine months ended September 30, 2019, we settled 562,964 shares underlying RSUs, of which 488,964 shares underlying RSUs were net settled by withholding 212,879 shares. The value of the RSUs withheld was $6.7 million, based on the closing price of our common stock on the settlement date. During the nine months ended September 30, 2018, we settled 634,851 shares underlying RSUs, of which 439,986 shares underlying RSUs were net settled by withholding 189,951 shares. The value of the RSUs withheld was $7.5 million, based on the closing price of our common stock on the settlement date. The value of RSUs withheld in each period was remitted to the appropriate taxing authorities and has been reflected as a financing activity in our condensed consolidated statements of cash flows.

Stock Options

The following is a summary of stock option activity under our 2014 EIP and Inducement Plan. The table below also includes the activity relating to options for 275,000 shares of our common stock which were issued in 2017 outside of these plans:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2018	6,276,999	$ 28.15		
Granted	2,100,225	29.86		
Exercised	(192,716)	17.92		
Forfeited or expired	(819,920)	31.74		
Outstanding as of September 30, 2019	7,364,588	$ 28.51	5.5	$ 968
Vested and expected to vest as of September 30, 2019	7,364,588	$ 28.51	5.5	$ 968
Exercisable as of September 30, 2019	3,284,621	$ 25.52	3.5	$ 820

Aggregate intrinsic value represents the difference between the closing stock price of our common stock on September 30, 2019 and the exercise price of outstanding, in-the-money options. As of September 30, 2019, there was $75.9 million of unrecognized stock-based compensation expense related to stock options that is expected to be recognized over a weighted average period of 2.8 years.

Options for 192,716 and 781,191 shares of our common stock were exercised during the nine months ended September 30, 2019 and 2018, with an intrinsic value of $3.4 million and $13.9 million, respectively. As we believe it is more likely than not that no stock option related tax benefits will be realized, we do not record any net tax benefits related to exercised options.

The fair value of each option issued was estimated at the date of grant using the Black-Scholes valuation model. The following table summarizes the weighted-average assumptions used as inputs to the Black-Scholes model, and resulting weighted-average grant date fair values of stock options granted to employees during the periods indicated:

	Nine Months Ended September 30,	
	2019	2018
Assumptions:		
Expected term (years)	5.9	4.6
Expected volatility	76.6 %	73.4 %
Risk-free interest rate	2.2 %	2.7 %
Expected dividend yield	0.0 %	0.0 %
Fair Value:		
Weighted-average estimated grant date fair value per share	$ 20.03	$ 22.86
Options granted	2,100,225	2,633,950
Total estimated grant date fair value	$ 42,068,000	$ 60,212,000

Employee Stock Purchase Plan

Our 2014 Employee Stock Purchase Plan ("2014 ESPP") allows eligible employees to purchase our common stock at 85% of the lower of its fair market value at (i) the beginning of a 12-month offering period, or (ii) at the end of one of the two related 6-month purchase periods. No participant in the 2014 ESPP may purchase shares of common stock valued at more than $25,000 per calendar year. The Company recorded $0.9 million and $0.5 million of expense related to the 2014 ESPP in the nine months ended September 30, 2019 and 2018, respectively. 74,439 and 77,100 shares were purchased under the 2014 ESPP during the nine months ended September 30, 2019 and 2018, respectively.

As of September 30, 2019, there was $0.8 million of unrecognized stock-based compensation expense related to the ESPP that is expected to be recognized by the end of the second quarter of 2020.

The 2014 ESPP provides for annual increases in the number of shares available for issuance thereunder on the first business day of each fiscal year, beginning with 2015 and ending in 2024, equal to the lower of (i) one percent of the number of shares of our common stock outstanding as of such date, (ii) 230,769 shares of our common stock, or (iii) a lesser number of shares as determined by our board of directors. As of September 30, 2019, there were 1,355,973 shares authorized under the 2014 ESPP.

Reserved Shares

The following shares of common stock were reserved for future issuance under our equity incentive plans as of September 30, 2019:

	Total Shares Reserved
2014 Equity Incentive Plan	12,101,764
2018 Inducement Plan	1,213,760
2014 Employee Stock Purchase Plan	1,067,575
Options granted outside the equity plans	109,666
Total reserved shares of common stock	14,492,765

Stock-based Compensation Expense

Total stock-based compensation expense related to all employee and non-employee stock awards was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(in thousands)		(in thousands)	
Research and development	$ 7,003	$ 4,682	$ 19,740	$ 10,997
General and administrative	5,149	4,570	19,882	13,267
Total stock-based compensation expense	$ 12,152	$ 9,252	$ 39,622	$ 24,264

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with our condensed consolidated financial statements and related notes included elsewhere in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2019. This discussion and other parts of this Quarterly Report contain forward-looking statements that involve risk and uncertainties, such as statements of our plans, objectives, expectations and intentions. As a result of many factors, including those factors set forth in the "Risk Factors" section of this Quarterly Report, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

Atara Biotherapeutics is a leading off-the-shelf, allogeneic T-cell immunotherapy company that isdeveloping novel treatments for patients withcancer, autoimmune and viral diseases. Our strategic priorities are:

- ***Tab-cel®***: Atara's most advanced T-cell immunotherapy, tab-cel® (tabelecleucel), currently in Phase 3 development for patients with Epstein-Barr virus, or EBV, associated post-transplant lymphoproliferative disease, or EBV+ PTLD, who have failed rituximab or rituximab plus chemotherapy, as well as other EBV-associated hematologic malignancies and solid tumors;
- ***ATA188***: T-cell immunotherapy targeting EBV antigens believed to be important for the potential treatment of progressive multiple sclerosis;
- ***ATA2271/ATA3271***: CAR T immunotherapy targeting mesothelin, with autologous (ATA2271) to allogeneic (ATA3271) development planned; and
- ***ATA3219***: Allogeneic CAR T targeting CD19 as proof-of-concept for our next generation technologies and EBV T-cell CAR T platform.

Our T-cell immunotherapy platform includes the capability to progress both allogeneic and autologous programs and is potentially applicable to a broad array of targets and diseases. Our off-the-shelf, allogeneic T-cell platform allows for rapid delivery of a T-cell immunotherapy product that has been manufactured in advance and stored in inventory, with each manufactured lot of cells providing therapy for numerous potential patients. This differs from autologous treatments, in which each patient's own cells must be extracted, modified outside the body and then delivered back to the patient. For tab-cel®, we utilize a proprietary cell selection algorithm to select the appropriate set of cells for use based on a patient's unique immune profile. This matching process is designed to allow our cells to be administered without the pre-treatment that is required for some therapies and to reduce monitoring following administration. In addition, Atara T-cell Operations and Manufacturing facility, or ATOM, is capable of producing multiple types of therapies and Atara MatchMe™, our proprietary, web-based, off-the-shelf delivery solution, will serve as a portal for order input, tracking, execution of our cell selection algorithm, product shipment and tracking.

We have entered into research collaborations with leading academic institutions such as Memorial Sloan Kettering Cancer Center, or MSK, the Council of the Queensland Institute of Medical Research, or QIMR Berghofer, and H. Lee Moffitt Cancer Center and Research Institute, or Moffitt, to acquire rights to novel and proprietary technologies.

We recognize that our clinical studies may not be available to all patients and we have established expanded access and compassionate use programs in instances where there is a significant patient need.

Pipeline

Tab-cel®

Atara's most advanced T-cell immunotherapy, tab-cel®, is in Phase 3 development for patients with EBV+ PTLD who have failed rituximab or rituximab plus chemotherapy, as well as other EBV-associated hematologic malignancies and solid tumors, including nasopharyngeal carcinoma, or NPC. Based on our market research, we estimate there were several hundred EBV+ PTLD patients who failed rituximab or rituximab plus chemotherapy in the U.S. in 2018.

We plan to initiate a tab-cel® biologics license application, or BLA, submission for patients with EBV+ PTLD in the second half of 2020. The initiation of our BLA submission is planned to occur prior to our submission of an EU conditional marketing authorization, or CMA, application. We remain in discussions with the European Medicines Agency, or EMA, and the outcome of these discussions will determine the timing of the tab-cel® CMA application for patients with EBV+ PTLD.

We have combined the two ongoing tab-cel® Phase 3 clinical studies (MATCH and ALLELE) into a single study (ALLELE) that now consists of a hematopoietic cell transplants, or HCT, cohort for EBV+ PTLD patients who have failed rituximab and a single solid organ transplant, or SOT, cohort for EBV+ PTLD patients who have failed rituximab with both chemotherapy and non-chemotherapy prior treatment experience. As part of the amended ALLELE protocol, we plan to conduct an interim analysis prior to initiating the BLA submission.

Our Phase 1/2 study of tab-cel® in combination with Merck's anti-PD-1 (programmed death receptor-1) therapy, KEYTRUDA® (pembrolizumab), in patients with platinum-resistant or recurrent EBV-associated NPC is currently enrolling. In addition, we expect to initiate a Phase 2 multi-cohort study including patients with other EBV+ cancers in the second half of 2020. Based on our market research, we estimate the incidence during 2018 of NPC in the U.S., United Kingdom, France, Italy and Spain was collectively approximately 3,800 patients and approximately 71,000 patients in East Asia. Our study is designed to address a sub-population of the total incidence of this disease.

ATA188

Atara is also developing ATA188, a T-cell immunotherapy targeting EBV antigens believed to be important for the potential treatment of multiple sclerosis, or MS. In the fourth quarter of 2017, we initiated an open label, single arm, multi-center, multi-national Phase 1 study with allogeneic ATA188 for patients with progressive MS, or PMS. Enrollment for the fourth and final Phase 1 dose escalation cohort was recently completed and we presented initial efficacy and updated safety results from this study in September 2019. These results were based on data as of July 29, 2019, and showed that across four planned dose cohorts, ATA188 was well tolerated in PMS patients, with no evidence of cytokine release syndrome, graft versus host disease or dose-limiting toxicities. Following a six-month assessment of patients in cohort 3 of this study, we have selected this cohort 3 dose to initiate the randomized, double-blind, placebo-controlled Phase 1b part of this study. We expect to present additional efficacy and safety results from the Phase 1a part of this study in 2020.

We plan to focus our clinical program in PMS on ATA188. At this time, we do not plan to initiate a randomized study of autologous ATA190 in PMS and will evaluate strategic options for this program.

ATA2271/ATA3271 and ATA3219 CAR T Programs

Atara's pipeline also includes next-generation CAR T immunotherapies for patients with hematologic malignancies and solid tumors, autoimmune and viral diseases, including ATA2271 and ATA3271 targeting mesothelin, which are partnered with MSK, and an internal allogeneic CD19 program, ATA3219, for patients with B-cell lymphomas.

We have prioritized our mesothelin-targeted next-generation CAR T program, ATA2271, which is partnered with MSK. In June 2019, at the American Society of Clinical Oncology, or ASCO, Annual Meeting, our collaborators at MSK presented Phase 1 clinical results demonstrating that their regionally-delivered mesothelin-targeted, autologous CAR T cells were well tolerated and showed encouraging anti-tumor activity in combination with pembrolizumab, a PD-1 checkpoint inhibitor. The results further support our planned development of a next-generation, mesothelin-targeted CAR T immunotherapy using MSK's novel 1XX CAR signaling domain and PD-1 dominant negative receptor, or DNR, checkpoint inhibition technologies for patients with mesothelin-associated solid tumors. An IND for this program in an autologous setting is planned in 2020. In parallel, we are conducting preclinical work on an allogeneic version of this mesothelin CAR T program, ATA3271.

We are also developing ATA3219, an allogeneic CAR T targeting CD19, as proof-of-concept for our next generation technologies and EBV T cell CAR T platform.

Additional Preclinical Programs

In addition to the prioritized programs described above, we have a number of preclinical programs, including ATA2321 for patients with acute myeloid leukemia, or AML, and ATA2431 for patients with B-cell lymphomas, which are partnered with Moffitt.

Manufacturing

In June 2018, we opened our dedicated and expandable Atara T-cell Operations and Manufacturing facility, or ATOM, in Thousand Oaks, California. ATOM has the flexibility to produce multiple T-cell and CAR T immunotherapies and integrates research and process science to enable rapid development. The research and development and process and analytical development labs at ATOM are currently supporting preclinical development activities. ATOM is designed to global regulatory standards, and the required facility commissioning and qualification activities to support clinical development are complete. Commercial production qualification activities for ATOM are progressing well and, together with our contracted manufacturing partner, are aligned with our planned commercial strategy.

In addition to ATOM, we also work with Cognate Bioservices, Inc., or Cognate, pursuant to a Development and Manufacturing Services Agreement, or Manufacturing Agreement, that we entered into in August 2015 and which was amended in December 2017, May 2018, November 2018 and June 2019. Pursuant to the Manufacturing Agreement, Cognate provides process development and manufacturing services for certain of our product candidates.

Financial Overview

We have a limited operating history. Since our inception in 2012, we have devoted substantially all of our resources to identify, acquire and develop our product candidates, including conducting preclinical and clinical studies, acquiring or manufacturing materials for clinical studies, constructing our manufacturing facility and providing general and administrative support for these operations.

Our net losses were $212.5 million and $150.7 million for the nine months ended September 30, 2019 and 2018, respectively. As of September 30, 2019, we had an accumulated deficit of $739.5 million. Substantially all of our net losses have resulted from costs incurred in connection with our research and development programs and from general and administrative expenses associated with our operations. As of September 30, 2019, our cash, cash equivalents and short-term investments totaled $282.9 million, which we intend to use to fund our operations. In July 2019, we completed an underwritten public offering of shares of common stock and pre-funded warrants and received aggregate net proceeds of $140.7 million.

Revenues

We have never generated revenues and have incurred losses since inception. We do not expect to receive any revenues from any product candidates that we develop until we obtain regulatory approval and commercialize our products or enter into collaborative agreements with third parties.

Research and Development Expenses

The largest component of our total operating expenses since inception has been our investment in research and development activities, including the preclinical and clinical development of our product candidates. Research and development expenses consist primarily of compensation and benefits for research and development employees, including stock-based compensation; expenses incurred under agreements with contract research organizations and investigative sites that conduct preclinical and clinical studies; the costs of acquiring and manufacturing clinical study materials and other supplies; payments under licensing and research and development agreements; other outside services and consulting costs; and facilities, information technology and overhead expenses. Research and development costs are expensed as incurred.

We plan to continue investment in the development of our product candidates. Our current planned research and development activities include the following:

- continuing to initiate sites and enroll patients in our Phase 3 clinical studies of tab-cel® for the treatment of patients with EBV+ PTLD after HCT and SOT who have failed rituximab;
- process development, testing and manufacturing of drug supply to support clinical studies and IND-enabling studies;
- continuing to develop product candidates based on our next-generation CAR T programs;
- continuing development of ATA188 in progressive MS;
- continuing to develop our product candidates in additional indications, including tab-cel® for NPC and EBV+ cancers;
- continuing to develop other pre-clinical product candidates; and
- leveraging our relationships and experience to in-license or acquire additional product candidates or technologies.

In addition, we believe it is important to invest in the development of new product candidates to continue to build the value of our product candidate pipeline and our business. We plan to continue to advance our most promising early product candidates into preclinical development with the objective to advance these early-stage programs to human clinical studies over the next several years.

Our expenditures on current and future preclinical and clinical development programs are subject to numerous uncertainties in timing and cost to completion. The duration, costs, and timing of clinical studies and development of our product candidates will depend on a variety of factors, including:

- the availability of qualified drug supply for use in our ongoing Phase 3 or other clinical studies;
- the scope, rate of progress, and expenses of our ongoing clinical studies, potential additional clinical studies and other research and development activities;
- future clinical study results;
- uncertainties in clinical study enrollment rates or discontinuation rates of patients;
- potential additional safety monitoring or other studies requested by regulatory agencies;
- changing medical practice patterns related to the indications we are investigating;
- significant and changing government regulation; and
- the timing and receipt of any regulatory approvals, as well as potential post-market requirements.

The process of conducting the necessary clinical research to obtain approval from the U.S. Food and Drug Administration, or FDA, and other regulators is costly and time consuming and the successful development of our product candidates is highly uncertain. The risks and uncertainties associated with our research and development projects are discussed more fully in the section of this report titled "1A. Risk Factors." As a result of these risks and uncertainties, we are unable to determine with any degree of certainty the duration and completion costs of our research and development projects, or if, when, or to what extent we will generate revenues from the commercialization and sale of any of our product candidates that obtain regulatory approval. We may never succeed in achieving regulatory approval for any of our product candidates.

General and Administrative Expenses

General and administrative expenses consist primarily of compensation and benefits for legal, human resources, finance, commercial and other general and administrative employees, including stock-based compensation; outside professional service costs, including legal, patent, human resources, audit and accounting services; other outside services and consulting costs, including those related to pre-commercial activities; and information technology and facilities costs. We anticipate that our general and administrative expenses will continue to increase in the future if we increase our headcount to support our continued research and development and the potential commercialization of one or more of our product candidates.

Interest and Other Income, net

Interest and other income, net consists primarily of interest earned on our cash, cash equivalents and short-term investments.

Critical Accounting Policies and Significant Judgments and Estimates

Except for the adoption of ASU No. 2016-02,*Leases* (Topic 842), effective January 1, 2019, as disclosed in Note 2 to our condensed consolidated financial statements, there have been no significant changes to our critical accounting policies and significant judgments and estimates during the nine months ended September 30, 2019 from those disclosed in our management's discussion and analysis of financial condition and results of operations included in our Annual Report on Form 10-K for the year ended December 31, 2018 filed with the SEC on February 26, 2019.

Results of Operations

Comparison of the Three and Nine Months Ended September 30, 2019 and 2018

Research and development expenses

Research and development expenses consisted of the following costs, by program, in the periods presented:

	Three Months Ended September 30,		Increase	Nine Months Ended September 30,		Increase
	2019	2018	(Decrease)	2019	2018	(Decrease)
	(in thousands)			(in thousands)		
Tab-cel® expenses	$ 11,115	$ 12,620	$ (1,505)	$ 34,006	$ 33,748	$ 258
ATA188, ATA190, CAR T and other program expenses	8,852	6,068	2,784	24,060	11,753	12,307
Employee and overhead expenses	33,571	24,667	8,904	96,391	59,701	36,690
Total research and development expenses	$ 53,538	$ 43,355	$ 10,183	$ 154,457	$ 105,202	$ 49,255

Tab-cel® expenses were $11.1 million and $34.0 million in the three and nine-month periods ended September 30, 2019, respectively, as compared to $12.6 million and $33.7 million in the comparative 2018 periods. Tab-cel® expenses for the nine-month period ended September 30, 2019 remained consistent with the comparative 2018 period. The decrease in tab-cel® expenses for the three-month period ended September 30, 2019 was primarily due to the higher clinical trial and manufacturing costs related to the ramp up of the related Phase 3 clinical trials in 2018.

ATA188, ATA190, CAR T and other program expenses were $8.9 million and $24.1 million in the three and nine-month periods ended September 30, 2019, respectively, as compared to $6.1 million and $11.8 million in the comparative 2018 periods. The increases in 2019 were primarily related to research and manufacturing process development costs related to our CAR T programs; increased clinical study, manufacturing and other outside service costs related to the Phase 1 clinical study of ATA188 for patients with PMS; and the ATA190 program.

Employee and overhead expenses were $33.6 million and $96.4 million in the three and nine-month periods ended September 30, 2019, respectively, as compared to $24.7 million and $59.7 million in the comparative 2018 periods. The increases were primarily due to higher compensation-related costs from increased headcount in support of our continuing expansion of research and development activities. For the three months ended September 30, 2019, payroll and related costs increased by $5.4 million, facility-related costs increased by $1.7 million and professional services costs increased by $1.8 million. For the nine months ended September 30, 2019, payroll and related costs increased by $24.0 million, facility-related costs increased by $9.1 million and professional services costs increased by $3.6 million.

General and administrative expenses

	Three Months Ended September 30,		Increase	Nine Months Ended September 30,		Increase
	2019	2018	(Decrease)	2019	2018	(Decrease)
	(in thousands)			(in thousands)		
General and administrative expenses	$ 19,018	$ 16,865	$ 2,153	$ 61,525	$ 50,093	$ 11,432

General and administrative expenses increased to $19.0 million and $61.5 million in the three and nine-month periods ended September 30, 2019, respectively, as compared to $16.9 million and $50.1 million in the comparative 2018 periods. The increases in 2019 were primarily due to increases in compensation-related costs driven by increased headcount.

Liquidity and Capital Resources

Sources of Liquidity

Since our inception in 2012, we have funded our operations primarily through the issuance of common and preferred stock.

In February 2019, we entered into a sales agreement, or the ATM Facility, with Cowen and Company, LLC, or Cowen, which provides for the sale, in our sole discretion, of shares of our common stock having an aggregate offering price of up to $100.0 million through Cowen, as our sales agent. The issuance and sale of these shares by us pursuant to the ATM Facility are deemed "at the market" offerings defined in Rule 415 under the Securities Act of 1933, as amended, or the Securities Act, and are registered under the Securities Act. We will pay a commission of up to 3.0% of gross sales proceeds of any common stock sold under the ATM Facility. During the three and nine months ended September 30, 2019, we sold an aggregate of 326,897 and 686,131 shares of common stock under the ATM Facility, respectively, at an average price of $15.77 and $19.13 per share, respectively, for net proceeds of $5.0 million and $12.6 million, respectively, after deducting commissions and other offering expenses payable by us.

In July 2019, we completed an underwritten public offering of 6,871,727 shares of common stock at a public offering price of $15.28 per share and pre-funded warrants to purchase 2,945,026 shares of common stock at a public offering price of $15.2799 per warrant. We received aggregate net proceeds of approximately $140.7 million after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

We have incurred losses and negative cash flows from operations in each year since inception. As of September 30, 2019, we had an accumulated deficit of $739.5 million. We do not expect to receive any revenues from any product candidates that we develop until we obtain regulatory approval and commercialize our products. As such, we anticipate that we will continue to incur losses the foreseeable future. We expect that our operating expenses will continue to increase. As a result, we will need additional capital to fund our operations, which we may raise through a combination of equity offerings, debt financings, other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements. We may borrow funds on terms that may include restrictive covenants, including covenants that restrict the operation of our business, liens on assets, high effective interest rates and repayment provisions that reduce cash resources and limit future access to capital markets. In addition, we expect to continue to opportunistically seek access to the equity capital markets to support our development efforts and operations, including by utilizing our ATM Facility. To the extent that we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. To the extent that we raise additional funds through collaboration or partnering arrangements, we may be required to relinquish some of our rights to our technologies or rights to market and sell our products in certain geographies, grant licenses on terms that are not favorable to us, or issue equity that may be substantially dilutive to our stockholders.

Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation. Currently, our cash, cash equivalents and short-term investments are held in bank and custodial accounts and consist of money market funds, U.S. Treasury, government agency and corporate debt obligations, commercial paper and asset-backed securities. We expect that existing cash, cash equivalents and short-term investments as of September 30, 2019 will be sufficient to fund our planned operations into 2021.

Our cash, cash equivalents and short-term investments balances as of the dates indicated were as follows:

	September 30, 2019	December 31, 2018
	(in thousands)	
Cash and cash equivalents	$ 94,431	$ 60,698
Short-term investments	188,491	248,933
Total cash, cash equivalents and short-term investments	$ 282,922	$ 309,631

Cash Flows

Comparison of the Nine Months Ended September 30, 2019 and 2018

The following table details the primary sources and uses of cash for each of the periods set forth below:

	Nine Months Ended September 30,	
	2019	2018
	(in thousands)	
Net cash provided by (used in):		
Operating activities	$ (176,936)	$ (122,353)
Investing activities	59,332	(242,357)
Financing activities	151,337	351,515
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 33,733	$ (13,195)

Operating activities

Net cash used in operating activities was $176.9 million in the 2019 period as compared to $122.4 million in the 2018 period. The increase of $54.6 million was primarily due to a $61.8 million increase in net loss and a $12.7 million increase in net operating assets, partially offset by a $15.4 million increase in stock-based compensation, a $2.9 million increase in depreciation and amortization expense, and a $0.9 million increase in loss on disposals of property and equipment.

Investing activities

Net cash provided by investing activities in the 2019 period consisted primarily of $209.4 million received from maturities and sales of available-for-sale securities, partially offset by $147.2 million used to purchase available-for-sale securities and $3.0 million in purchases of property and equipment. Net cash used in investing activities in the 2018 period consisted primarily of $402.6 million used to purchase available-for-sale securities and $31.8 million in purchases of property and equipment, partially offset by $192.0 million received from maturities and sales of available-for-sale securities.

Financing activities

Net cash provided by financing activities in the 2019 period consisted primarily of $140.9 million of net proceeds received from the underwritten public offering of common stock and pre-funded warrants in July 2019, $12.6 million of net proceeds from the ATM Facility and $4.9 million of net proceeds from employee stock award transactions, partially offset by $6.7 million of taxes paid related to the net share settlement of RSUs. Net cash provided by financing activities in the 2018 period consisted primarily of $293.3 million of aggregate net proceeds from the underwritten public offerings in January and March 2018, $47.6 million of net proceeds from the ATM facility and $18.5 million of net proceeds from employee stock transactions, partially offset by $7.5 million of taxes paid related to the net share settlement of restricted stock.

Operating Capital Requirements and Plan of Operations

To date, we have not generated any revenue from product sales. We do not know when, or if, we will generate any revenue from product sales. We do not expect to generate significant revenue from product sales unless and until we obtain regulatory approval of and commercialize one of our current or future product candidates. We anticipate that we will continue to generate losses for the foreseeable future, and we expect the losses to increase as we continue the development of and seek regulatory approvals for our product candidates and begin to commercialize any approved products. We are subject to all of the risks inherent in the development of new products, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. We anticipate that we will need to raise substantial additional funding in connection with our continuing and expected expansion of our operations.

We expect that our existing cash, cash equivalents and short-term investments will be sufficient to fund our planned operations into 2021. In order to complete the process of obtaining regulatory approval for any of our product candidates and to build the sales, marketing and distribution infrastructure that we believe will be necessary to commercialize our product candidates, if approved, we will require substantial additional funding.

We have based our projections of operating capital requirements on assumptions that may prove to be incorrect and we may use all of our available capital resources sooner than we expect. Because of the numerous risks and uncertainties associated with research, development and commercialization of pharmaceutical products, we are unable to estimate the exact amount of our operating capital requirements. Our future funding requirements will depend on many factors, including, but not limited to:

- the timing and costs of our ongoing and planned clinical and preclinical studies for our product candidates;
- our success in establishing and scaling commercial manufacturing capabilities;
- the number and characteristics of product candidates that we pursue;
- the outcome, timing and costs of seeking regulatory approvals;
- subject to receipt of regulatory approval, costs associated with the commercialization of our product candidates and the amount of revenues received from commercial sales of our product candidates;
- the terms and timing of any future collaborations, licensing, consulting or other arrangements that we may establish;
- the amount and timing of any payments we may be required to make in connection with the licensing, filing, prosecution, maintenance, defense and enforcement of any patents or patent applications or other intellectual property rights;
- the extent to which we in-license or acquire other products and technologies; and
- the timing of capital expenditures, including the qualification of our manufacturing facility.

Contractual Obligations and Commitments

We lease our corporate headquarters in South San Francisco, California under a non-cancellable lease agreement for approximately 13,670 square feet of office space. The lease expires in April 2021.

In January 2015, we entered into a non-cancellable lease agreement for office and laboratory space in Westlake Village, California. The lease expired in April 2019.

In February 2017, we entered into a lease agreement for ATOM, consisting of approximately 90,580 square feet of office, lab and cellular therapy manufacturing space in Thousand Oaks, California. The initial 15-year term of this lease commenced in February 2018, upon the substantial completion of landlord's work as defined under the agreement. The contractual obligations during the initial term are $16.4 million in aggregate. We have the option to extend this lease for two additional periods of ten and nine years, respectively, after the initial term. In connection with this lease, we were required to issue a letter of credit in the amount of $1.2 million to the landlord, which is recorded as long-term restricted cash in our condensed consolidated balance sheet.

In November 2018, we entered into a lease agreement for approximately 51,160 square feet of office space in Thousand Oaks, California. The initial term of this lease expires in February 2026. The contractual obligations during the initial term are $8.5 million in aggregate. We have the option to extend the lease for an additional period of five years after the initial term.

In May 2019, we entered into a new lease agreement for our approximately 8,400 square feet of office and lab space in Aurora, Colorado. The term of this lease expires in April 2024. The contractual obligations during the lease term are $1.1 million in aggregate.

Our contractual obligations primarily consist of our obligations under non-cancellable operating and finance leases, as disclosed in Note 7 to our condensed consolidated financial statements. We may also enter into contracts in the normal course of business with clinical research organizations for clinical studies, with contract manufacturing organizations for clinical supplies, and with other vendors for preclinical studies and supplies and other services and products for operating purposes. These contracts generally provide for termination on notice. There have been no material changes to our contractual obligations disclosed in our Annual Report on Form 10-K for the year ended December 31, 2018.

Off-Balance Sheet Arrangements

We did not have, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC, during the periods presented.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

During the nine months ended September 30, 2019, there were no material changes to our interest rate risk disclosures, market risk disclosures and foreign currency exchange rate risk disclosures reported in our Annual Report on Form 10-K for the year ended December 31, 2018 filed with the SEC on February 26, 2019.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Under the supervision of our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act as of September 30, 2019. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of September 30, 2019 to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely discussion regarding required disclosure. In designing and evaluating our disclosure controls and procedures, management recognizes that any disclosure controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Inherent Limitations on Controls and Procedures

Our management, including our Chief Executive Officer and our Chief Financial Officer (the person performing a similar function to that of the Principal Financial and Accounting Officer for this purpose), does not expect that our disclosure controls and procedures and our internal controls 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, within the Company have been or will be detected. As these inherent limitations are known features of the financial reporting process, it is possible to design into the process 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 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 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.

We intend to review and evaluate the design and effectiveness of our disclosure controls and procedures on an ongoing basis and to improve our controls and procedures over time and to correct any deficiencies that we may discover in the future. While our Chief Executive Officer and Chief Financial Officer have concluded that, as of September 30, 2019, the design of our disclosure controls and procedures, as defined in Rule 13a-15(e) under the Exchange Act, was effective, future events affecting our business may cause us to significantly modify our disclosure controls and procedures.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rules 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the nine months ended September 30, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

None.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider all of the risk factors and uncertainties described below, in addition to the other information contained in this Quarterly Report on Form 10-Q, including the section of this report titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated and combined financial statements and related notes, before investing in our common stock.

The risks described below may not be the only ones relating to our company and additional risks that we currently believe are immaterial may also affect us.If any of these risks, including those described below, materialize, our business, competitive position, reputation, financial condition, results of operations, cash flows and future prospects could be seriously harmed. In these circumstances, the market price of our common stock could decline, and investors may lose all or a part of their investment.

Risks Related to Our Financial Results and Capital Needs

We have incurred substantial losses since our inception and anticipate that we will continue to incur substantial and increasing losses for the foreseeable future.

We are a clinical-stage biopharmaceutical company. Investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that a product candidate will fail to prove effective, gain regulatory approval or become commercially viable. We do not have any products approved by regulatory authorities and have not generated any revenues from product sales or otherwise to date, and have incurred significant research, development and other expenses related to our ongoing operations and expect to continue to incur such expenses. As a result, we have not been profitable and have incurred significant operating losses in every reporting period since our inception. For the nine months ended September 30, 2019, we reported a net loss of $212.5 million and we had an accumulated deficit of $739.5 million as of September 30, 2019.

We do not expect to generate revenues for the foreseeable future, if at all. We expect to continue to incur significant expenses and operating losses for the foreseeable future. We anticipate these losses to increase as we continue to research, develop and seek regulatory approvals for our product candidates and any additional product candidates we may acquire, in-license or develop, and potentially begin to commercialize product candidates that may achieve regulatory approval. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenues. If any of our product candidates fails in clinical studies or does not gain regulatory approval, or if approved, fails to achieve market acceptance, we may never become profitable. Even if we achieve profitability in the future, we may not be able to sustain profitability in subsequent periods. We anticipate that our expenses will increase in the future as we continue to invest in research and development of our existing product candidates, investigate and potentially acquire new product candidates and expand our manufacturing and commercialization activities.

We have a limited operating history, which may make it difficult to evaluate the success of our business to date and to assess our future viability.

Our company was formed in August 2012. Our operations to date have been limited to organizing and staffing our company, acquiring product and technology rights and conducting product development activities for our product candidates. We have not yet demonstrated our ability to successfully complete any Phase 2 or Phase 3 clinical studies, obtain regulatory approval, consistently manufacture a commercial scale product or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization for any of our product candidates. In addition, the adoptive immunotherapy technology underlying our T-cell product candidates, including our next-generation CAR T programs, is new and largely unproven. Any predictions about our future success, performance or viability, particularly in view of the rapidly evolving immunotherapy field, may not be as accurate as they could be if we had a longer operating history or approved products on the market.

In addition, as a young business, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors. We will need to transition at some point from a company with a research and development focus to a company capable of supporting commercial activities. We may not be successful in such a transition. We expect our financial condition and operating results to continue to fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. Accordingly, any of our quarterly or annual periods' results are not indicative of future operating performance.

We currently have no source of revenues. We may never generate revenues or achieve profitability.

To date, we have not generated any revenues from product sales or otherwise. Even if we are able to successfully achieve regulatory approval for our product candidates, we do not know when we will generate revenues or become profitable, if at all. Our ability to generate revenues from product sales and achieve profitability will depend on our ability to successfully commercialize products, including any of our current product candidates, and other product candidates that we may develop, in-license or acquire in the future. Our ability to generate revenues and achieve profitability also depends on a number of additional factors, including our ability to:

- successfully complete development activities, including the necessary clinical studies;
- complete and submit regulatory submissions to the FDA, EMA or other agencies and obtain regulatory approval for indications for which there is a commercial market;
- obtain coverage and adequate reimbursement from third parties, including government and private payors;
- set commercially viable prices for our products, if any;
- develop manufacturing and distribution processes for our novel T-cell immunotherapy product candidates;
- develop commercial quantities of our products at acceptable cost levels;
- establish and maintain adequate supply of our products, including cell lines with sufficient breadth to treat patients;
- establish and maintain manufacturing relationships with reliable third parties or qualify our manufacturing facility such that we can maintain the supply of our products by ensuring adequate, manufacturing of bulk drug substances and drug products in a manner that is compliant with global legal requirements;
- achieve market acceptance of our products, if any;
- attract, hire and retain qualified personnel;
- protect our rights in our intellectual property portfolio;
- develop a commercial organization capable of sales, marketing and distribution for any products we intend to sell ourselves in the markets in which we choose to commercialize on our own; and
- find suitable distribution partners to help us market, sell and distribute our approved products in other markets.

Our revenues for any product candidate for which regulatory approval is obtained will be dependent, in part, upon the size of the markets in the territories for which we gain regulatory approval, the accepted price for the product, the ability to get reimbursement at any price, and whether we own the commercial rights for that territory. If the number of our addressable disease patients is not as significant as we estimate, the indication approved by regulatory authorities is narrower than we expect, or the reasonably accepted population for treatment is narrowed by competition, physician choice or treatment guidelines, we may not generate significant revenues from sales of our products, even if approved. In addition, we anticipate incurring significant costs associated with commercializing any approved product candidate. As a result, even if we generate revenues, we may not become profitable and may need to obtain additional funding to continue operations. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and may be forced to reduce our operations.

We will require substantial additional financing to achieve our goals, and a failure to obtain this necessary capital when needed could force us to delay, limit, reduce or terminate our product development or commercialization efforts.

We expect to expend substantial resources for the foreseeable future to continue the clinical development and manufacturing of our T-cell immunotherapy product candidates, and the advancement and expansion of our preclinical research pipeline. We also expect to continue to expend resources for the development and manufacturing of product candidates and the technology we have licensed or have an exclusive right to license from our partners. These expenditures will include costs associated with research and development, potentially acquiring or licensing new product candidates or technologies, conducting preclinical and clinical studies and potentially obtaining regulatory approvals and manufacturing products, as well as marketing and selling products approved for sale, if any. Under the terms of our license agreements with each of our partners, we are obligated to make payments upon the achievement of certain development, regulatory and commercial milestones. We will also need to make significant expenditures to develop a commercial organization capable of sales, marketing and distribution for any products, if any, that we intend to sell ourselves in the markets in which we choose to commercialize on our own. In addition, other unanticipated costs may arise. Because the design and outcome of our ongoing, planned and anticipated clinical studies is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of our product candidates.

Our future capital requirements depend on many factors, including:

- the scope, progress, results and costs of researching and developing our product candidates, and conducting preclinical and clinical studies;
- the timing of, and the costs involved in, obtaining regulatory approvals for our product candidates, if clinical studies are successful, including any costs from post-market requirements;
- the cost of commercialization activities for our product candidates, if any of these product candidates is approved for sale, including marketing, sales and distribution costs;
- the cost of manufacturing our product candidates for clinical studies in preparation for regulatory approval and in preparation for commercialization;
- our ability to establish and maintain strategic licensing or other arrangements and the financial terms of such agreements;
- the costs to develop, acquire or in-license future product candidates or technologies;
- the costs involved in preparing, filing, prosecuting, maintaining, expanding, defending and enforcing patent claims, including litigation costs and the outcome of such litigation;
- the timing, receipt and amount of sales of, or royalties on, our future products, if any; and
- the emergence of competing technologies or other adverse market developments.

We believe that our existing cash, cash equivalents and short-term investments will be sufficient to fund our planned operations into 2021. As of September 30, 2019, we had total cash, cash equivalents and short-term investments of $282.9 million. However, our operating plan may change as a result of many factors currently unknown to us, and we may need additional funds sooner than planned. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

We do not have any committed external source of funds. Additional funds may not be available when we need them on terms that are acceptable to us, or at all. If adequate funds are not available to us on a timely basis, we may be required to delay, limit, reduce or terminate preclinical studies, clinical studies or other development activities for one or more of our product candidates or delay, limit, reduce or terminate our establishment of sales, marketing and distribution capabilities or other activities that may be necessary to commercialize our product candidates.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our product candidates on terms that are unfavorable to us.

We may seek additional capital through a variety of means, including through private and public equity offerings and debt financings. To the extent that we raise additional capital through the sale of equity or convertible debt securities, or if existing holders of warrants exercise their rights to purchase common stock, the ownership interest of existing stockholders will be diluted, and the terms may include liquidation or other preferences that adversely affect the rights of stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take certain actions, including incurring additional debt, making capital expenditures, entering into licensing arrangements, or declaring dividends. If we raise additional funds from third parties, we may have to relinquish valuable rights to our technologies or product candidates or grant licenses on terms that are not favorable to us. If we are unable to raise additional funds through equity or debt financing when needed, we may be required to delay, limit, reduce or terminate our product development or commercialization efforts for our product candidates, grant to others the rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves or take other actions that are adverse to our business.

Risks Related to the Development of Our Product Candidates

We are early in our development efforts and have only a small number of product candidates in clinical development. All of our other product candidates are still in preclinical development. If we or our collaborators are unable to successfully develop and commercialize product candidates or experience significant delays in doing so, our business may be materially harmed.

We are early in our development efforts, and only a small number of our product candidates are in clinical development. The majority of our product candidates are currently in preclinical development. We have invested substantial resources in identifying and developing potential product candidates, conducting preclinical and clinical studies, manufacturing activities and preparing for the potential commercial launch of our product candidates. Our ability to generate revenues, which we do not expect will occur for several years, if ever, will depend heavily on the successful development and eventual commercialization of our product candidates. The success of our product candidates will depend on many factors, including the following:

- completion of preclinical and clinical studies with positive results;
- receipt of regulatory approvals from applicable authorities;
- protecting our rights in our intellectual property portfolio, including by obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our product candidates;
- establishing or making arrangements with third-party manufacturers or completing our own manufacturing facility for clinical and commercial manufacturing purposes;
- developing manufacturing and distribution processes for our novel T-cell product candidates and next-generation CAR T programs;
- manufacturing our product candidates at an acceptable cost;
- launching commercial sales of our products, if approved by applicable regulatory authorities, whether alone or in collaboration with others;
- acceptance of our products, if approved by applicable regulatory authorities, by patients and the medical community;
- obtaining and maintaining coverage and adequate reimbursement by third-party payors, including government payors, for our products, if approved by applicable regulatory authorities;
- effectively competing with other therapies;
- maintaining a continued acceptable benefit/risk profile of the products following approval; and
- maintaining and growing an organization of scientists and functional experts who can develop and commercialize our products and technology.

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

Our future success is dependent on the regulatory approval of our product candidates.

We do not have any products that have gained regulatory approval. Currently, our clinical-stage product candidates include tab-cel®, ATA188 and ATA190. Our business is substantially dependent on our ability to obtain regulatory approval for, and, if approved, to successfully commercialize our product candidates in a timely manner.

We cannot commercialize product candidates in the U.S. without first obtaining regulatory approval for the product from the FDA; similarly, we cannot commercialize product candidates outside of the U.S. without obtaining regulatory approval from comparable foreign regulatory authorities. Before obtaining regulatory approvals for the commercial sale of any product candidate for a target indication, we must demonstrate with substantial evidence gathered in preclinical and clinical studies, that the product candidate is safe and effective for use for that target indication and that the manufacturing facilities, processes and controls are adequate with respect to such product candidate to assure safety, purity and potency.

The time required to obtain approval by the FDA and comparable foreign regulatory authorities is unpredictable but typically takes many years following the commencement of preclinical and clinical studies and depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for any product candidate and it is possible that none of our existing product candidates or any future product candidates will ever obtain regulatory approval.

Our product candidates could fail to receive regulatory approval from the FDA or a comparable foreign regulatory authority for many reasons, including:

- disagreement with the design or conduct of our clinical studies;
- failure to demonstrate positive benefit/risk profile of the product candidate for its proposed indication;
- failure of clinical studies to meet the level of statistical significance required for approval;
- disagreement with our interpretation of data from preclinical studies or clinical studies;
- the insufficiency of data collected from clinical studies of our product candidates to support the submission and filing of a BLA or other submission or to obtain regulatory approval;
- failure to obtain approval of our manufacturing processes or facilities of third-party manufacturers with whom we contract for clinical and commercial supplies or our own manufacturing facility; or
- changes in the approval policies or regulations that render our preclinical and clinical data insufficient for approval.

The FDA or a comparable foreign regulatory authority may require more information, including additional preclinical or clinical data to support approval, which may delay or prevent approval and our commercialization plans, or we may decide to abandon the development program. If we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request (including failing to approve the most commercially promising indications), may grant approval contingent on the performance of costly post-marketing clinical studies, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate.

In addition, the clinical study requirements of the FDA, EMA and other regulatory agencies and the criteria these regulators use to determine the safety and efficacy of a product candidate are determined according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process for novel product candidates, such as our novel T-cell product candidates and next-generation CAR T programs, can be more complex and consequently more expensive and take longer than for other, better known or extensively studied pharmaceutical or other product candidates. Approvals by the EMA and FDA for existing autologous CAR T therapies, such as Novartis's Kymriah and Gilead's Yescarta, may not be indicative of what these regulators may require for approval of our therapies. Moreover, our product candidates may not perform successfully in clinical studies or may be associated with adverse events that distinguish them from that which have previously been approved, such as existing autologous CAR T therapies. For instance, allogeneic product candidates may result in adverse events not experienced with autologous products.

In January 2019, the U.S. federal government entered a prolonged shutdown suspending services deemed non-essential, including certain activities of the FDA, and U.S. politicians have expressed interest in future similar shutdowns as a negotiating tactic. Our development and commercialization activities could be harmed or delayed by a similar shutdown of the U.S. federal government in the future, which may significantly delay the FDA's ability to timely review and process any submissions we have filed or may file or cause other regulatory delays.

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. If we are unable to obtain regulatory approval for one of our product candidates in one or more jurisdictions, or any approval contains significant limitations, we may not be able to obtain sufficient funding to continue the development of that product or generate revenues attributable to that product candidate. Also, any regulatory approval of our current or future product candidates, once obtained, may be withdrawn.

Our T-cell immunotherapy product candidates and our next-generation CAR T programs represent new therapeutic approaches that could result in heightened regulatory scrutiny, delays in clinical development or delays in or our inability to achieve regulatory approval, commercialization or payor coverage of our product candidates.

Our future success is dependent on the successful development of T-cell immunotherapies and our next-generation CAR T programs in general and our development product candidates in particular. Because these programs, particularly our pipeline of allogenic T-cell product candidates that are bioengineered from donors, represent a new approach to immunotherapy for the treatment of cancer and other diseases, developing and commercializing our product candidates subject us to a number of challenges, including:

- obtaining regulatory approval from the FDA and other regulatory authorities, which have limited experience with regulating the development and commercialization of T-cell immunotherapies;
- developing and deploying consistent and reliable processes for procuring blood from consenting third-party donors, isolating T-cells from the blood of such donors, activating the isolated T-cells against a specific antigen, characterizing and storing the resulting activated T-cells for future therapeutic use, selecting and delivering a sufficient supply and breadth of appropriate partially HLA-matched cell line from among the available T-cell lines, and finally infusing these activated T-cells into patients;

- utilizing these product candidates in combination with other therapies (e.g. immunomodulatory approaches such as checkpoint inhibitors), which may increase the risk of adverse side effects;
- educating medical personnel regarding the potential side effect profile of each of our product candidates, particularly those that may be unique to our allogenic T-cell product candidates and to our next-generation CAR T programs;
- understanding and addressing variability in the quality of a donor's T-cells, which could ultimately affect our ability to manufacture product in a reliable and consistent manner;
- developing processes for the safe administration of these products, including long-term follow-up and registries, for all patients who receive these product candidates;
- manufacturing our product candidates to our specifications and in a timely manner to support our clinical studies and, if approved, commercialization;
- sourcing clinical and, if approved by applicable regulatory authorities, commercial supplies for the materials used to manufacture and process these product candidates that are free from viruses and other pathogens that may increase the risk of adverse side effects;
- developing a manufacturing process and distribution network that can provide a stable supply with a cost of goods that allows for an attractive return on investment;
- establishing sales and marketing capabilities ahead of and after obtaining any regulatory approval to gain market acceptance, and obtaining adequate coverage, reimbursement and pricing by third-party payors and government authorities; and
- developing therapies for types of diseases beyond those initially addressed by our current product candidates.

We cannot be sure that the manufacturing processes used in connection with our T-cell immunotherapy product candidates will yield a sufficient supply of satisfactory products that are safe, pure and potent, comparable to those T-cells produced by our partners historically, scalable or profitable.

Moreover, actual or perceived safety issues, including adoption of new therapeutics or novel approaches to treatment, may adversely influence the willingness of subjects to participate in clinical studies, or if approved by applicable regulatory authorities, of physicians to subscribe to the novel treatment mechanics. The FDA or other applicable regulatory authorities may ask for specific post-market requirements, and additional information informing benefits or risks of our products may emerge at any time prior to or after regulatory approval.

Physicians, hospitals and third-party payors often are slow to adopt new products, technologies and treatment practices that require additional upfront costs and training. Physicians may not be willing to undergo training to adopt this novel therapy, may decide the therapy is too complex to adopt without appropriate training or not cost-efficient, and may choose not to administer the therapy. Based on these and other factors, hospitals and payors may decide that the benefits of this new therapy do not or will not outweigh its costs.

The results of preclinical studies or earlier clinical studies are not necessarily predictive of future results. Our existing product candidates in clinical studies, and any other product candidate we advance into clinical studies, may not have favorable results in later clinical studies or receive regulatory approval.

Success in preclinical studies and early clinical studies does not ensure that later clinical studies will generate adequate data to demonstrate the efficacy and safety of an investigational drug. Likewise, a number of companies in the pharmaceutical and biotechnology industries, including those with greater resources and experience than us, have suffered significant setbacks in clinical studies, even after seeing promising results in earlier preclinical studies or clinical studies. Despite the results reported in earlier preclinical studies or clinical studies for our product candidates, we do not know whether the clinical studies we may conduct will demonstrate adequate efficacy and safety to result in regulatory approval to market tab-cel®, ATA188 or ATA190, any product candidates resulting from our next-generation CAR T programs or any of our other product candidates in any particular jurisdiction.

Tab-cel® has been predominantly evaluated in single-center studies under investigator-sponsored INDs held by MSK and in our EAP, utilizing different response criteria and endpoints from those we may utilize in later clinical studies. The findings may not be reproducible in late phase studies we conduct. For instance, the current protocol for our ALLELE study is designed to rule out a 20% ORR as the null hypothesis. This means that if the lower bound of the 95% confidence interval on ORR among patients receiving at least one dose of tab-cel® exceeds 20% at the end of the study, then the study would be expected to meet the primary endpoint for the treatment of PTLD. For example, assuming enrollment of 33 patients in ALLELE, an observed ORR above approximately 37% would be expected to meet the primary endpoint. In addition, our amended ALLELE study protocol includes an interim analysis as well as a final study analysis. Depending on discussions with regulators, we may, for example, submit a filing on the basis of interim data from a subset of the required patients or submit a filing on the basis of the final data. A filing based on interim data would impact the required ORR.

For regulatory approvals of tab-cel®, we plan on using independent radiologist and/or oncologist assessment of responses which may not correlate with the investigator-reported assessments. In addition, the Phase 2 clinical studies with tab-cel® enrolled a heterogeneous group of patients with a variety of EBV-associated malignancies, including EBV+ PTLD after HCT and EBV+ PTLD after SOT. These Phase 2 studies were not prospectively designed to evaluate the efficacy of tab-cel® in the treatment of a single disease state for which we may later seek approval. If conditional marketing authorization is granted from the European Commission, we may be subject to ongoing obligations, including the need to provide additional clinical data at a later stage to confirm a positive benefit/risk balance.

Moreover, final study results may not be consistent with interim study results. Efficacy data from prospectively designed studies may differ significantly from those obtained from retrospective subgroup analyses. In addition, clinical data obtained from a clinical study with an allogeneic product candidate such as ATA188 may not yield the same or better results as compared to an autologous product candidate such as ATA190. If later-stage clinical studies do not produce favorable results, our ability to achieve regulatory approval for any of our product candidates may be adversely impacted. Even if we believe that we have adequate data to support an application for regulatory approval to market any of our product candidates, the FDA or other regulatory authorities may not agree and may require that we conduct additional clinical studies.

Interim "top line" and preliminary data from our clinical studies that we may announce or share with regulatory authorities from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may announce or share with regulatory authorities interim "top line" or preliminary data from our clinical studies. Interim data from clinical studies that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Preliminary or "top line" data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously announced. As a result, interim and preliminary data should be viewed with caution until the final data are available. Adverse differences between preliminary or interim data and final data could impact the regulatory approval of, and significantly harm the prospects of any product candidate that is impacted by the applicable data.

Clinical drug development involves a lengthy and expensive process with an uncertain outcome.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical study process. Product candidates in later stages of clinical studies may fail to show the desired safety and efficacy traits despite having progressed through preclinical and clinical studies.

We may experience delays in our ongoing or future clinical studies and we do not know whether clinical studies will begin or enroll subjects on time, will need to be redesigned or will be completed on schedule, if at all. There can be no assurance that the FDA or comparable foreign regulatory authorities will not put clinical studies of any of our product candidates on clinical hold in the future. Clinical studies may be delayed, suspended or prematurely terminated for a variety of reasons, such as:

- delay or failure in reaching agreement with the FDA or a comparable foreign regulatory authority on a study design that we are able to execute;
- delay or failure in obtaining authorization to commence a study or inability to comply with conditions imposed by a regulatory authority regarding the scope or design of a study;
- delay or failure in reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical study sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and study sites;
- delay or failure in obtaining institutional review board, or IRB, approval or the approval of other reviewing entities, including comparable foreign regulatory authorities, to conduct a clinical study at each site;
- withdrawal of clinical study sites from our clinical studies or the ineligibility of a site to participate in our clinical studies;
- delay or failure in recruiting and enrolling suitable subjects to participate in a study;
- delay or failure in subjects completing a study or returning for post-treatment follow-up;
- clinical sites and investigators deviating from study protocol, failing to conduct the study in accordance with regulatory requirements, or dropping out of a study;
- inability to identify and maintain a sufficient number of study sites, including because potential study sites may already be engaged in competing clinical study programs for the same indication that we are treating;
- failure of our third-party clinical study managers to satisfy their contractual duties, meet expected deadlines or return trustworthy data;
- delay or failure in adding new study sites;
- interim results or data that are ambiguous or negative or are inconsistent with earlier results or data;
- feedback from the FDA, the IRB, data safety monitoring boards or comparable foreign authorities, or results from earlier stage or concurrent preclinical and clinical studies, that might require modification to the protocol for a study;
- a decision by the FDA, the IRB, comparable foreign authorities, or us, or a recommendation by a data safety monitoring board or comparable foreign authority, to suspend or terminate clinical studies at any time for safety issues or for any other reason;
- unacceptable benefit/risk profile, unforeseen safety issues or adverse side effects;
- failure to demonstrate a benefit from using a product candidate;
- difficulties in manufacturing or obtaining from third parties sufficient quantities and breadth of appropriate partially HLA matched cell lines from among the available T-cell lines to start or to use in clinical studies;
- lack of adequate funding to continue a study, including the incurrence of unforeseen costs due to enrollment delays, requirements to conduct additional studies or increased expenses associated with the services of our CROs and other third parties; or
- changes in governmental regulations or administrative actions or lack of adequate funding to continue a clinical study.

Patient enrollment, a significant factor in the timing of clinical studies, is affected by many factors including:

- the size and nature of the patient population;
- the possibility that the rare diseases that many of our product candidates address are under-diagnosed;
- changing medical practice patterns or guidelines related to the indications we are investigating;
- the severity of the disease under investigation, our ability to open clinical study sites;
- the proximity of subjects to clinical sites;
- the patient referral practices of physicians;
- the design and eligibility criteria of the clinical study;
- ability to obtain and maintain patient consents;
- risk that enrolled subjects will drop out or die before completion;
- competition for patients from other clinical studies;
- our ability to manufacture the requisite materials for a study;
- risk that we do not have appropriately matched HLA cell lines; and
- clinicians' and patients' perceptions as to the potential advantages and risks of the drug being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating.

As an example, we activated additional clinical sites over the course of 2018 and increased HLA coverage during this period. As a result, enrollment in our studies was limited in the early part of 2018 and increased through the course of the year as we increased clinical sites and HLA coverage. However, in May 2019, we announced that enrollment in our Phase 3 studies of tab-cel® for patients with EBV+ PTLD was proceeding slower than anticipated. Many of our product candidates are designed to treat rare diseases, and as a result the pool of potential patients with respect to a given disease is small. We may not be able to initiate or continue to support clinical studies of tab-cel®, ATA188, ATA190 or any other product candidates if we are unable to locate and enroll a sufficient number of eligible participants in these studies as required by the FDA or other regulatory authorities. Even if we are able to enroll a sufficient number of patients in our clinical studies, if the pace of enrollment is slower than we expect, the development costs for our product candidates may increase and the completion of our studies may be delayed or our studies could become too expensive to complete.

We rely on CROs, other vendors and clinical study sites to ensure the proper and timely conduct of our clinical studies, and while we have agreements governing their committed activities, we have limited influence over their actual performance.

If we experience delays or quality issues in the conduct, completion or termination of any clinical study of our product candidates, the approval and commercial prospects of such product candidate will be harmed, and our ability to generate product revenues from such product candidate will be delayed. In addition, any delays in completing our clinical studies will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenues. Any delays in completing our clinical studies for our product candidates may also decrease the period of commercial exclusivity. In addition, many of the factors that could cause a delay in the commencement or completion of clinical studies may also ultimately lead to the denial of regulatory approval of our product candidates.

Our product candidates, the methods used to deliver them or their dosage levels may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label or result in significant negative consequences following any regulatory approval.

Undesirable side effects caused by our product candidates, their delivery methods or dosage levels could cause us or regulatory authorities to interrupt, delay or halt clinical studies and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign regulatory authority. As a result of safety or toxicity issues that we may experience in our clinical studies, we may not receive approval to market any product candidates, which could prevent us from ever generating revenues or achieving profitability. Results of our studies could reveal an unacceptably high severity and incidence of side effects, or side effects outweighing the benefits of our product candidates. In such an event, our studies could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of or deny approval of our product candidates for any or all targeted indications. The drug-related side effects could affect patient recruitment or the ability of enrolled subjects to complete the study or result in potential product liability claims.

Additionally, if any of our product candidates receives regulatory approval, and we or others later identify undesirable side effects caused by such product, a number of potentially significant negative consequences could result, including that:

- we may be forced to suspend marketing of that product;
- regulatory authorities may withdraw or change their approvals of that product;
- regulatory authorities may require additional warnings on the label or limit access of that product to selective specialized centers with additional safety reporting and with requirements that patients be geographically close to these centers for all or part of their treatment;
- we may be required to conduct post-marketing studies;
- we may be required to change the way the product is administered;
- we could be sued and held liable for harm caused to subjects or patients; and
- our reputation may suffer.

Any of these events could diminish the usage or otherwise limit the commercial success of our product candidates and prevent us from achieving or maintaining market acceptance of the affected product candidate, if approved by applicable regulatory authorities.

The market opportunities for our product candidates may be limited to those patients who are ineligible for or have failed prior treatments and may be small.

The FDA often approves new therapies initially only for use in patients with relapsed or refractory metastatic disease. We expect to initially seek approval of tab-cel® and our other product candidates in this setting. Subsequently, for those products that prove to be sufficiently beneficial, if any, we would expect to seek approval in earlier lines of treatment and potentially as a first line therapy, but there is no guarantee that our product candidates, even if approved, would be approved for earlier lines of therapy, and, prior to any such approvals, we will have to conduct additional clinical trials.

Our projections of both the number of people who have the cancers we are targeting, as well as the subset of people with these cancers in a position to receive second or later lines of therapy, and who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including scientific literature, surveys of clinics, patient foundations, or our own market research, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these cancers. The number of patients may turn out to be lower than expected. Additionally, the potentially addressable patient population for our product candidates may be limited or may not be amenable to treatment with our product candidates. For instance, we expect our lead product candidate, tab-cel®, to initially target a small patient population that suffers from aggressive EBV+PTLD who have failed rituximab or rituximab plus chemotherapy. Even if we obtain significant market share for our product candidates, because the potential target populations are small, we may never achieve profitability without obtaining regulatory approval for additional indications.

We may not be able to obtain or maintain orphan drug exclusivity for our product candidates.

Regulatory authorities in some jurisdictions, including the U.S. and Europe, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually in the U.S. Both the FDA and the EMA have granted us orphan designation for tab-cel® for EBV+ PTLD after HCT or SOT.

Generally, if a product with an orphan drug designation subsequently receives the first regulatory approval for the indication for which it has such designation, the product is entitled to a period of marketing exclusivity, which precludes the EMA or the FDA from approving another marketing application for the same drug for that time period. The applicable period is seven years in the U.S. and ten years in Europe. The European exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

Even if we obtain orphan drug exclusivity for a product, that exclusivity may not be maintained or effectively protect the product from competition because different drugs can be approved for the same condition. Even after an orphan drug is approved, the FDA can subsequently approve a new drug for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care.

Breakthrough Therapy Designation by the FDA may not lead to a faster development or regulatory review or approval process and it does not increase the likelihood that our product candidates will receive marketing approval.

Although we have obtained Breakthrough Therapy Designation, or BTD, for tab-cel® for EBV+ PTLD, this may not lead to faster development or regulatory review and does not increase our likelihood of success. A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug, or biologic in our case, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the study can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Biologics designated as breakthrough therapies by the FDA may also be eligible for priority review.

Designation as a breakthrough therapy is within the discretion of the FDA. Receipt of a BTD for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under non-expedited the FDA review procedures and does not assure ultimate approval by the FDA. In addition, the FDA may later decide that the product no longer meets the conditions for qualification and rescind BTD or decide that the time period for FDA review or approval will not be shortened.

Failure to obtain regulatory approval in international jurisdictions would prevent our product candidates from being marketed abroad.

In addition to regulations in the U.S., to market and sell our products in the European Union, many Asian countries and other jurisdictions, we must obtain separate regulatory approvals and comply with numerous and varying regulatory requirements, both from a clinical and manufacturing perspective. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the U.S. generally includes all of the risks associated with obtaining FDA approval. Clinical studies accepted in one country may not be accepted by regulatory authorities in other countries. In addition, many countries outside the U.S. require that a product be approved for reimbursement before it can be approved for sale in that country. A product candidate that has been approved for sale in a particular country may not receive reimbursement approval in that country. We may not be able to obtain approvals from regulatory authorities or payor authorities outside the U.S. on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory or payor authorities in other countries or jurisdictions, and approval by one regulatory or payor authority outside the U.S. does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. We may not be able to file for regulatory approvals and may not receive necessary approvals to commercialize our products in any market. If we are unable to obtain approval of any of our product candidates by regulatory or payor authorities in the European Union, Asia or elsewhere, the commercial prospects of that product candidate may be significantly diminished.

Even if our product candidates receive regulatory approval, they may still face future development and regulatory difficulties.

Even if we obtain regulatory approval for a product candidate, it would be subject to ongoing requirements by the FDA and comparable foreign regulatory authorities governing the manufacture, quality control, further development, labeling, packaging, storage, distribution, adverse event reporting, safety surveillance, import, export, advertising, promotion, recordkeeping and reporting of safety and other post-marketing information. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance by us and/or our contract manufacturing organizations, or CMOs, and CROs for any post-approval clinical studies that we conduct. The safety profile of any product will continue to be closely monitored by the FDA and comparable foreign regulatory authorities after approval. If the FDA or comparable foreign regulatory authorities become aware of new safety information after approval of any of our product candidates, they may require labeling changes or establishment of a risk evaluation and mitigation strategy, impose significant restrictions on a product's indicated uses or marketing or impose ongoing requirements for potentially costly post-approval studies or post-market surveillance.

In addition, manufacturers of drug products and their facilities are subject to initial and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with current good manufacturing practices, or cGMP, current Good Clinical Practices, or GCP, current good tissue practices, or cGTP, and other regulations. If we or a regulatory agency discover 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 on that product, the manufacturing facility or us, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. If we, our product candidates or the manufacturing facilities for our product candidates fail to comply with applicable regulatory requirements, a regulatory agency may:

- issue warning letters or untitled letters;
- mandate modifications to promotional materials or require us to provide corrective information to healthcare practitioners;
- require us to enter into a consent decree, which can include imposition of various fines, reimbursements for inspection costs, required due dates for specific actions and penalties for noncompliance;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend, withdraw or modify regulatory approval;
- suspend or modify any ongoing clinical studies;
- refuse to approve pending applications or supplements to applications filed by us;
- suspend or impose restrictions on operations, including costly new manufacturing requirements; or
- seize or detain products, refuse to permit the import or export of products, or require us to initiate a product recall.

The occurrence of any event or penalty described above may inhibit our ability to successfully commercialize our products.

Advertising and promotion of any product candidate that obtains approval in the U.S. will be heavily scrutinized by the FDA, the Department of Justice, or the DOJ, the Office of Inspector General of the HHS, state attorneys general, members of the U.S. Congress and the public. Additionally, advertising and promotion of any product candidate that obtains approval outside of the U.S. will be heavily scrutinized by comparable foreign entities and stakeholders. Violations, including actual or alleged promotion of our products for unapproved or off-label uses, are subject to enforcement letters, inquiries and investigations, and civil and criminal sanctions by the FDA or comparable foreign bodies. Any actual or alleged failure to comply with labeling and promotion requirements may result in fines, warning letters, mandates to corrective information to healthcare practitioners, injunctions, or civil or criminal penalties.

Regulations, guidelines and recommendations published by various government agencies and organizations may affect the use of our product candidates.

Changes to regulations, recommendations or other guidelines advocating alternative therapies for the indications we treat could result in decreased use of our products. For example, although treatment with EBV-specific T-cells is recognized as a recommended treatment for persistent or progressive EBV+ PTLD as set forth in the 2017 National Comprehensive Cancer Network Guidelines, future guidelines from governmental agencies, professional societies, practice management groups, private health/science foundations and other organizations could lead to decreased ability of developing our product candidates, or decreased use of our products once approved by applicable regulatory authorities.

We may not successfully identify, acquire, develop or commercialize new potential product candidates.

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. In addition, in the event that 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 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.

We may not realize the benefits of strategic alliances that we may form in the future or of potential future product acquisitions or licenses.

We may desire to form strategic alliances, create joint ventures or collaborations, enter into licensing arrangements with third parties or acquire products or business, in each case that we believe will complement or augment our existing business. These relationships or transactions, or those like them, may require us to incur nonrecurring and other charges, increase our near- and long-term expenditures, issue securities that dilute our existing stockholders, reduce the potential profitability of the products that are the subject of the relationship or disrupt our management and business. In addition, we face significant competition in seeking appropriate strategic alliances and transactions and the negotiation process is time-consuming and complex and there can be no assurance that we can enter into any of these transactions even if we desire to do so. Moreover, we may not be successful in our efforts to establish a strategic alliance or other alternative arrangements for any future product candidates and programs because our research and development pipeline may be insufficient, our product candidates and programs may be deemed to be at too early a stage of development for collaborative effort and third parties may not view our product candidates and programs as having the requisite potential to demonstrate a positive benefit/risk profile. Any delays in entering into new strategic alliances agreements related to our product candidates could also delay the development and commercialization of our product candidates and reduce their competitiveness even if they reach the market.

If we license products or acquire businesses, we may not be able to realize the benefit of these transactions if we are unable to successfully integrate them with our existing operations and company culture. We cannot be certain that, following an acquisition or license, we will achieve the financial or strategic results that would justify the transaction.

Risks Related to Manufacturing

We are subject to a multitude of manufacturing risks, any of which could substantially increase our costs and limit supply of our product candidates.

Concurrently with the license of our existing product candidates, we acquired manufacturing process know-how and, in some cases, inventory of process intermediates and clinical materials from our partners. Transferring manufacturing processes, testing and associated 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. Each stage is retroactively and concurrently verified to be compliant with appropriate regulations. As a result, there is a risk that all relevant know-how was not adequately transferred to us from our partners or that previous execution was not compliant with applicable regulations.

In addition, we need to conduct significant development and scale-up work to transfer these processes and manufacture each of our product candidates for various studies, clinical studies and commercial launch readiness. To the extent we elect to transfer manufacturing within our network, we are required to demonstrate that the product manufactured in the new or “receiving” facility is comparable to the product manufactured in the original or “sending” facility. The inability to demonstrate to each of the applicable regulatory authorities that comparable drug product was manufactured could delay the development of our product candidates.

The processes by which our product candidates are manufactured were initially developed by our partners for clinical purposes. We intend to evolve the existing processes with our partners to support advanced clinical studies and commercialization requirements. Developing commercially viable manufacturing processes is a difficult and uncertain task, and there are risks associated with scaling to the level required for advanced clinical studies or commercialization, including cost overruns, potential problems with process scale-up, process reproducibility, stability issues, consistency and timely availability of reagents or raw materials. The manufacturing facilities in which our product candidates will be made could be adversely affected by earthquakes and other natural disasters, equipment failures, labor shortages, power failures, and numerous other factors.

The process of manufacturing cellular therapies is susceptible to product loss due to contamination, equipment failure or improper installation or operation of equipment, or vendor or operator error. Even minor deviations from normal manufacturing and distribution processes for any of our product candidates could result in reduced production yields, impact to key product quality attributes, and other supply disruptions. Product defects can also occur unexpectedly. If microbial, viral or other contaminations are discovered in our product candidates or in the manufacturing facilities in which our product candidates are made, these manufacturing facilities may need to be closed for an extended period of time to allow us to investigate and remedy the contamination. Because our T-cell immunotherapy product candidates are manufactured from the blood of third-party donors, the process of manufacturing is susceptible to the availability of the third-party donor material. The process of developing products that can be commercialized may be particularly challenging, even if they otherwise prove to be safe and effective. The manufacture of these product candidates involves complex processes. Some of these processes require specialized equipment and highly skilled and trained personnel. The process of manufacturing these product candidates will be susceptible to additional risks, given the need to maintain aseptic conditions throughout the manufacturing process. Contamination with viruses or other pathogens in either the donor material or materials utilized

in the manufacturing process or ingress of microbiological material at any point in the process may result in contaminated or unusable product. This type of contaminations could result in delays in the manufacture of products which could result in delays in the development of our product candidates. These contaminations could also increase the risk of adverse side effects. Furthermore, our allogeneic products ultimately consist of many individual cell lines, each with a different HLA profile. As a result, the selection and distribution of the appropriate cell line for therapeutic use in a patient requires close coordination between clinical operations, supply chain and quality assurance personnel.

Any adverse developments affecting manufacturing operations for our product candidates may result in lot failures, inventory shortages, shipment delays, product withdrawals or recalls or other interruptions in the supply of our drug product which could delay the development of our product candidates. We may also have to write off inventory, incur other charges and expenses for supply of drug product that fails to meet specifications, undertake costly remediation efforts, or seek more costly manufacturing alternatives. Inability to meet the demand for our product candidates could damage our reputation and the reputation of our products among physicians, healthcare payors, patients or the medical community that supports our product development efforts, including hospitals and outpatient clinics.

We intend to manufacture at least a portion of our product candidates ourselves. Delays in commissioning and receiving regulatory approvals for our manufacturing facility could delay our development plans and thereby limit our ability to generate revenues.

In June 2018, we opened our Atara T-cell Operations and Manufacturing, or ATOM, facility in Thousand Oaks, California. The research and development and process and analytical development labs are operationally supporting preclinical development activities. The facility commissioning and qualification activities required to support ATOM production were completed in 2018. Product-specific qualification to support clinical development is complete and commercial production qualification activities are ongoing. If the appropriate regulatory approvals for the new facility are delayed, we may not be able to manufacture sufficient quantities of our drug candidates, which would limit our development activities and our opportunities for growth.

In addition to the similar manufacturing risks described in "Risks Related to Our Dependence on Third Parties," our manufacturing facility will be subject to ongoing, periodic inspection by the FDA, EMA or other comparable regulatory agencies to ensure compliance with cGMP and GTP. Our failure to follow and document our adherence to these regulations or other regulatory requirements may lead to significant delays in the availability of products for clinical or, in the future, commercial use, may result in the termination of or a hold on a clinical study, or may delay or prevent filing or approval of commercial marketing applications for our product candidates. We also may encounter problems with the following:

- achieving adequate or clinical-grade materials that meet regulatory agency standards or specifications with consistent and acceptable production yield and costs;
- shortages of qualified personnel, raw materials or key contractors; and
- ongoing compliance with cGMP regulations and other requirements of the FDA, EMA or other comparable regulatory agencies.

Failure to comply with applicable regulations could also result in sanctions being imposed on us, including fines, injunctions, civil penalties, a requirement to suspend or put on hold one or more of our clinical studies, failure of regulatory authorities to grant marketing approval of our drug candidates, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of drug candidates, operating restrictions and criminal prosecutions, any of which could harm our business.

Developing advanced manufacturing techniques and process controls is required to fully utilize our facility. Without further investment, advances in manufacturing techniques may render our facility and equipment inadequate or obsolete.

A number of the product candidates in our portfolio, if approvedby applicable regulatory authorities, may require significant commercial supply to meet market demand. In these cases, we may need to increase, or "scale up," the production process by a significant factor over the initial level of production. If we are unable to do so, are delayed, or if the cost of this scale up is not economically feasible for us or we cannot find a third-party supplier, we may not be able to produce our product candidates in a sufficient quantity to meet future demand.

If our sole clinical or commercial manufacturing facility or our CMO is damaged or destroyed or production at these facilities is otherwise interrupted, our business would be negatively affected.

If any manufacturing facility in our manufacturing network, or the equipment in these facilities, is either damaged or destroyed, we may not be able to quickly or inexpensively replace our manufacturing capacity or replace it at all. In the event of a temporary or protracted loss of a facility or its equipment, we may not be able to transfer manufacturing to a third party in the time required to maintain supply. Even if we could transfer manufacturing to a third party, the shift would likely be expensive and time-consuming, particularly since the new facility would need to comply with the necessary regulatory requirements or may require regulatory approval before selling any products manufactured at that facility. Such an event could delay our clinical studies or reduce our commercial product sales.

Currently, we maintain insurance coverage against damage to our property and to cover business interruption and research and development restoration expenses. However, our insurance coverage may not reimburse us, or may not be sufficient to reimburse us, for any expenses or losses we may suffer. We may be unable to meet our requirements for our product candidates if there were a catastrophic event or failure of our current manufacturing facility or processes.

Risks Related to Our Dependence on Third Parties

Maintaining clinical and commercial timelines is dependent on our end-to-end supply chain network to support manufacturing; if we experience problems with our third party suppliers we may delay development and/or commercialization of our product candidates.

We do not currently manufacture our product candidates in our own facilities and we rely on our CMO or our partners for the production of our product candidates and the acquisitions of materials incorporated in or used in the manufacturing or testing of our product candidates. Our CMOs or partners are not our employees, and except for remedies available to us under our agreements with our CMOs or partners, we cannot directly control whether or not they devote sufficient time and resources, including experienced staff, to the manufacturing of supply for our ongoing clinical, nonclinical and preclinical programs.

To meet our projected supply needs for clinical and commercial materials to support our activities through regulatory approval and commercial manufacturing of tab-cel®, ATA188, ATA190, any product candidates resulting from our next-generation CAR T programs or any other product candidates, we will need to transition the manufacturing of these materials to a CMO or our own facility. Regardless of where production occurs, we will need to develop relationships with suppliers of critical starting materials or reagents, increase the scale of production and demonstrate comparability of the material produced at these facilities to the material that was previously produced. 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. We would expect additional comparability work will 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 CMO. For example, we generated and evaluated data from new material manufactured by our CMO and identified certain assays that need refinement prior to initiating the Phase 3 studies of tab-cel®. We have generated comparability data from the clinical material produced by our CMO using our refined assays and believe this data supports the demonstration of comparability, and we recently initiated the Phase 3 studies in the U.S. following discussions with FDA.

If we are not able to successfully transfer and produce comparable product candidates, our ability to further develop and manufacture our product candidates may be negatively impacted.

While the addition of the ATOM facility provides us with future flexibility within our manufacturing network, we still may need to identify additional CMOs for continued production of supply for some of our product candidates. Given the nature of our manufacturing processes, the number of CMOs who possess the requisite skill and capability to manufacture our T-cell immunotherapy product candidates is limited. We have not yet identified alternate suppliers in the event the current CMOs that we utilize are unable to scale production, or if we otherwise experience any problems with them.

Manufacturing cellular therapies is complicated and tightly regulated by the FDA and comparable regulatory authorities around the world, and although alternative third-party suppliers with the necessary manufacturing and regulatory expertise and facilities exist, it could be expensive and take a significant amount of time to arrange for alternative suppliers, transfer manufacturing procedures to these alternative suppliers, and demonstrate comparability of material produced by such new suppliers. New manufacturers of any product candidate or intermediate would be required to qualify under applicable regulatory requirements. These manufacturers may

not be able to manufacture our product candidates at costs, or in sufficient quantities, or in a timely manner necessary to complete development of our product candidates or make commercially successful products. If we are unable to arrange for alternative third-party manufacturing sources, or to do so on commercially reasonable terms or in a timely manner, we may not be able to complete development of our product candidates, or market or distribute them. In addition, should the FDA or comparable regulatory authorities not agree with our product candidate specifications and comparability assessments for these materials, further clinical development of our product candidate could be substantially delayed and we would incur substantial additional expenses.

Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured product candidates ourselves, including reliance on the third party for regulatory compliance and quality assurance, the possibility that the third-party manufacturer does not maintain the financial resources to meet its obligations under the manufacturing agreement, the possibility of breach of the manufacturing agreement by the third party because of factors beyond our control, including a failure to manufacture our product candidates or any products we may eventually commercialize in accordance with our specifications, misappropriation of our proprietary information, including our trade secrets and know-how, and the possibility of termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or damaging to us. In addition, the FDA and other regulatory authorities require that our product candidates and any products that we may eventually commercialize be manufactured according to cGMP, cGTP and similar regulatory jurisdictional standards. These requirements include, among other things, quality control, quality assurance and the maintenance of records and documentation. The FDA or similar foreign regulatory agencies may also implement new standards at any time or change their interpretations 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 and although we monitor our manufacturers, we depend on them to provide honest and accurate information. Any failure by our third-party manufacturers to comply with cGMP or cGTP or failure to scale up manufacturing processes, including any failure to deliver sufficient quantities of product candidates in a timely manner, could lead to a delay in, or failure to obtain, regulatory approval of any of our product candidates. In addition, such failure could be the basis for the FDA to issue a warning letter, withdraw approvals for product candidates previously granted to us, or take other regulatory or legal action, including recall or seizure of outside supplies of the product candidate, total or partial suspension of production, suspension of ongoing clinical studies, refusal to approve pending applications or supplemental applications, detention or product, refusal to permit the import or export of products, injunction or imposing civil and criminal penalties.

We depend on third party suppliers for key materials used to produce our product candidates. Any significant disruption in our supplier relationships could harm our business. Any significant delay in the supply of a product candidate for an ongoing clinical study could considerably delay initiation or completion of our clinical studies, product testing and potential regulatory approval of our product candidates. If raw materials or components cannot be purchased or fail to meet approved specifications, the commercial launch of our product candidates could be delayed, or there could be a shortage in supply, which could impair our ability to generate revenues from the sale of our product candidates.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain sufficient intellectual property protection for our product candidates, or if the scope of the intellectual property protection is not sufficiently broad, our ability to commercialize our product candidates successfully and to compete effectively may be adversely affected.

We rely upon a combination of patents, trademarks, trade secrets and confidentiality agreements – both that we own or possess or that are owned or possessed by our partners that are in-licensed to us – to protect the intellectual property related to our technology and product candidates. When we refer to "our" technologies, inventions, patents, patent applications or other intellectual property rights, we are referring to both the rights that we own or possess as well as those that we in-license, many of which are critical to our intellectual property protection and our business. For example, the product candidates and platform technology we have licensed from our partners are protected primarily by patent or patent applications of our partners that we have licensed and as confidential know-how and trade secrets. If the intellectual property that we rely on is not adequately protected, competitors may be able to use our technologies and erode or negate any competitive advantage we may have.

The patentability of inventions and the validity, enforceability and scope of patents in the biotechnology field is uncertain because it involves complex legal, scientific and factual considerations, and it has in recent years been the subject of significant litigation. Moreover, the standards applied by the U.S. Patent and Trademark Office, or USPTO, and non-U.S. patent offices in granting patents are not always applied uniformly or predictably. For example, there is no uniform worldwide policy regarding patentable subject matter or the scope of claims allowable in biotechnology patents.

There is no assurance that all potentially relevant prior art relating to our patents and patent applications is known to us or has been found in the instances where searching was done. We may be unaware of prior art that could be used to invalidate an issued patent or prevent a pending patent application from issuing as a patent. There also may be prior art of which we are aware, but which we do not believe affects the validity or enforceability of a claim of one of our patents or patent applications, which may, nonetheless, ultimately be found to affect the validity or enforceability of such claim. As a consequence of these and other factors, our patent applications may fail to result in issued patents with claims that cover our product candidates in the U.S. or in other countries.

Even if patents have issued or do successfully issue from patent applications, and even if these patents cover our product candidates, third parties may challenge the validity, enforceability or scope thereof, which may result in these patents being narrowed, invalidated or held to be unenforceable. No assurance can be given that if challenged, our patents would be declared by a court to be valid or enforceable.

Even if unchallenged, our patents and patent applications or other intellectual property rights may not adequately protect our intellectual property, provide exclusivity for our product candidates or prevent others from designing around our claims. The possibility exists that others will develop products on an independent basis which have the same effect as our product candidates and which do not infringe our patents or other intellectual property rights, or that others will design around the claims of patents that we have had issued that cover our product candidates. If the breadth or strength of protection provided by our patents and patent applications with respect to our product candidates is threatened, it could jeopardize our ability to commercialize our product candidates and dissuade companies from collaborating with us.

We may also desire to seek a license from a third party who owns intellectual property that may be useful for providing exclusivity for our product candidates, or for providing the ability to develop and commercialize a product candidate in an unrestricted manner. There is no guarantee that we will be able to obtain a license from such a third party on commercially reasonable terms, or at all.

In addition, the USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction.

We and our partners have filed a number of patent applications covering our product candidates or methods of using or making those product candidates. We cannot offer any assurances about which, if any, patents will be issued with respect to these pending patent applications, the breadth of any such patents that are ultimately issued or whether any issued patents will be found invalid and unenforceable or will be threatened by third parties. Because patent applications in the U.S. and most other countries are confidential for a period of time after filing, and some remain so until issued, we cannot be certain that we or our partners were the first to file any patent application related to a product candidate. We or our partners may also become involved in proceedings regarding our patents, including patent infringement lawsuits, interference or derivation proceedings, oppositions, and *inter partes* and post-grant review proceedings before the USPTO the European Patent Office and other non-U.S. patent offices.

Even if granted, patents have a limited lifespan. In the U.S., the natural expiration of a patent generally occurs 20 years after it is filed. Although various extensions may be available if certain conditions are met, the life of a patent and the protection it affords is limited. If we encounter delays in our clinical studies or in obtaining regulatory approvals, the period of time during which we could exclusively market any of our product candidates under patent protection, if approved, could be reduced. Even if patents covering our product candidates are obtained, once the patent life has expired for a product, we may be vulnerable to competition from biosimilar products, as we may be unable to prevent competitors from entering the market with a product that is similar or identical to our product candidates.

Furthermore, the research resulting in certain of our licensed patent rights and technology was funded by the U.S. government. As a result, the government has certain rights to these patent rights and technology. When new technologies are developed with government funding, the government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to practice the invention for or on behalf of the U.S. These rights may permit the government to disclose confidential information on which we rely to third parties and to exercise march-in rights to use or allow third parties to use our licensed technology. The government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations or to give preference to U.S. industry. In addition, our rights in any inventions that result from government-funded research may be subject to certain requirements to manufacture products embodying these inventions in the U.S.

If we are sued for infringing the intellectual property rights of third parties, the resulting litigation could be costly and time-consuming and could prevent or delay our development and commercialization efforts.

Our commercial success depends, in part, on us and our partners not infringing the patents and proprietary rights of third parties. There is a substantial amount of litigation and other adversarial proceedings, both within and outside the U.S., involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interference or derivation proceedings, oppositions, and *inter partes* and post-grant review proceedings before the USPTO and non-U.S. patent offices. Numerous U.S. and non-U.S. issued patents and pending patent applications owned by third parties exist in the fields in which we are developing and may develop our product 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 third parties' patent rights, as it may not always be clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform or predictable.

Third parties may assert infringement claims against us based on existing or future intellectual property rights, alleging that we are employing their proprietary technology without authorization. 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 manufacturing of our product candidates that we failed to identify. For example, patent applications covering our product candidates could have been filed by others without our knowledge, since these applications generally remain confidential for some period of time after their filing date. Even pending patent applications that have been published, including some of which we are aware, could be later amended in a manner that could cover our product candidates or their use or manufacture. In addition, we may have analyzed patents or patent applications of third parties that we believe are relevant to our activities and believe that we are free to operate in relation to any of our product candidates, but our competitors may obtain issued claims, including in patents we consider to be unrelated, which may block our efforts or potentially result in any of our product candidates or our activities infringing their claims.

If we or our partners are sued for patent infringement, we would need to demonstrate that our product candidates, products and methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid, and we may not be able to do this. Proving that a patent is invalid is difficult and even if we are successful in the relevant proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted from other activities. If any issued third-party patents were held by a court of competent jurisdiction to cover aspects of our materials, formulations, methods of manufacture or methods for treatment, we could be forced, including by court order, to cease developing, manufacturing or commercializing the relevant product candidate until the relevant patent expired. Alternatively, we may desire or be required to obtain a license from such third party in order to use the infringing technology and to continue developing, manufacturing or marketing the infringing product candidate. However, we may not be able to obtain any required license on commercially reasonably terms, or at all. Even if we were able to obtain a license, the rights may be nonexclusive, which could result in our competitors gaining access to the same intellectual property licensed to us.

We may face claims that we misappropriated the confidential information or trade secrets of a third party. If we are found to have misappropriated a third party's trade secrets, we may be prevented from further using these trade secrets, which could limit our ability to develop our product candidates.

Defending against intellectual property claims could be costly and time consuming, regardless of the outcome. Thus, even if we were to ultimately prevail, or to settle before a final judgment, any litigation could burden us with substantial unanticipated costs. In addition, litigation or threatened litigation could result in significant demands on the time and attention of our management team, distracting them from the pursuit of other company business. During the course of any intellectual property litigation, there could be public announcements of the results of hearings, rulings on motions, and other interim proceedings in the litigation and these announcements may have negative impact on the perceived value of our product candidates, programs or intellectual property. In the event of a successful intellectual property claim against us, we may have to pay substantial damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent, or to redesign our infringing product candidates, which may be impossible or require substantial time and monetary expenditure. In addition to paying monetary damages, we may lose valuable intellectual property rights or personnel and the parties making claims against us may obtain injunctive or other equitable relief, which could impose limitations on the conduct of our business. We may also elect to enter into license agreements in order to settle patent infringement claims prior to litigation, and any of these license agreements may require us to pay royalties and other fees that could be significant. As a result of all of the foregoing, any actual or threatened intellectual property claim could prevent us from developing or commercializing a product candidate or force us to cease some aspect of our business operations.

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

Filing, prosecuting, enforcing and defending patents on all of our product candidates in all countries throughout the world would be prohibitively expensive. Our intellectual property rights in certain countries outside the U.S. may be less extensive than those in the U.S. In addition, the laws of certain foreign countries do not protect intellectual property rights to the same extent as laws in the U.S. Consequently, we and our partners may not be able to prevent third parties from practicing our inventions in countries outside the U.S., or from selling or importing infringing products made using our inventions in and into the U.S. or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection or where we do not have exclusive rights under the relevant patents to develop their own products and, further, may export otherwise-infringing products to territories where we and our partners have patent protection but where enforcement is not as strong as that in the U.S. These infringing products may compete with our product candidates in jurisdictions where we or our partners have no issued patents or where we do not have exclusive rights under the relevant patents, or our patent claims and other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biopharmaceuticals, which could make it difficult for us and our partners to stop the infringement of our patents or marketing of competing products in violation of our intellectual property rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims against us or our partners. We or our partners may not prevail in any lawsuits that we or our licensors initiate, and even if we or our licensors are successful the damages or other remedies awarded, if any, may not be commercially meaningful.

We have in-licensed a significant portion of our intellectual property from our partners. If we breach any of our license agreements with these partners, we could lose the ability to continue the development and potential commercialization of one or more of our product candidates.

We hold rights under license agreements with our partners, including MSK, QIMR Berghofer and Moffitt that are important to our business. Our discovery and development platform is built, in part, around patent rights in-licensed from our partners. Under our existing license agreements, we are subject to various obligations, including diligence obligations with respect to development and commercialization activities, payment obligations upon achievement of certain milestones and royalties on product sales. If there is any conflict, dispute, disagreement or issue of nonperformance between us and our counterparties regarding our rights or obligations under these license agreements, including any conflict, dispute or disagreement arising from our failure to satisfy diligence or payment obligations, we may be liable to pay damages and our counterparties may have a right to terminate the affected license. The termination of any license agreement with one of our partners could materially adversely affect our ability to utilize the intellectual property that is subject to that license agreement in our drug discovery and development efforts, our ability to enter into future collaboration, licensing and/or marketing agreements for one or more affected product candidates and our ability to commercialize the affected product candidates. Furthermore, a disagreement under any of these license agreements may harm our relationship with the partner, which could have negative impacts on other aspects of our business.

We may become involved in lawsuits to protect or enforce our intellectual property, which could be expensive, time-consuming and unsuccessful and have a material adverse effect on the success of our business.

Third parties may infringe our patents or misappropriate or otherwise violate our intellectual property rights. Our patent applications cannot be enforced against third parties practicing the technology claimed in these applications unless and until a patent issues from the applications, and then only to the extent the issued claims cover the technology. In the future, we or our partners may elect to initiate legal proceedings to enforce or defend our or our partners' intellectual property rights, to protect our or our partners' trade secrets or to determine the validity or scope of our intellectual property rights. Any claims that we or our partners assert against perceived infringers could also provoke these parties to assert counterclaims against us or our partners alleging that we or our partners infringe their intellectual property rights or that our intellectual property rights are invalid.

Interference or derivation proceedings provoked by third parties, brought by us or our partners, or brought by the USPTO or any non-U.S. patent authority may be necessary to determine the priority of inventions or matters of inventorship with respect to our patents or patent applications. We or our partners may also become involved in other proceedings, such as reexamination or opposition proceedings, *inter partes* review, post-grant review or other pre-issuance or post-grant proceedings in the USPTO or its foreign counterparts relating to our intellectual property or the intellectual property of others. An unfavorable outcome in any of these proceedings could require us or our partners to cease using the related technology and commercializing our product candidates, 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 or our

partners a license on commercially reasonable terms if any license is offered at all. Even if we or our licensors obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us or our licensors. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates.

Any intellectual property proceedings can be expensive and time-consuming. Our or our partners' adversaries in these proceedings may have the ability to dedicate substantially greater resources to prosecuting these legal actions than we or our partners can. Accordingly, despite our or our partners' efforts, we or our partners may not be able to prevent third parties from infringing upon or misappropriating our intellectual property rights, particularly in countries where the laws may not protect our rights as fully as in the U.S. Even if we are successful in the relevant proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted from other activities. We could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent. In addition, in an infringement proceeding, a court may decide that one or more of our patents is invalid or 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 proceeding could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments.

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

In addition to seeking the protection afforded by patents, 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 other elements of our technology, discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. The T-cell immunotherapy product candidates and platform technology we have licensed from our partners are protected primarily as confidential know-how and trade secrets. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, including by enabling them to develop and commercialize products substantially similar to or competitive with our product candidates, thus eroding our competitive position in the market.

Trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements and invention assignment agreements with our employees, consultants, and outside scientific advisors, contractors and collaborators. These agreements are designed to protect our proprietary information. Although we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors, or outside scientific advisors might intentionally or inadvertently disclose our trade secrets or confidential, proprietary information to competitors. In addition, competitors may otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. If any of our confidential proprietary information were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position.

Enforcing a claim that a third party illegally obtained and is using any of our trade secrets is expensive and time consuming, and the outcome is unpredictable. In addition, the laws of certain foreign countries do not protect proprietary rights such as trade secrets to the same extent or in the same manner as the laws of the U.S. Misappropriation or unauthorized disclosure of our trade secrets to third parties could impair our competitive advantage in the market and could materially adversely affect our business, results of operations and financial condition.

Risks Related to Commercialization of Our Product Candidates

Our commercial success depends upon attaining significant market acceptance of our product candidates, if approved, among physicians, patients, healthcare payors and the medical community, including hospitals and outpatient clinics.

Even if we obtain regulatory approval for any of our product candidates that we may develop or acquire in the future, the product may not gain market acceptance among physicians, healthcare payors, patients or the medical community that supports our product development efforts, including hospitals and outpatient clinics. 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 the product candidates as demonstrated in clinical studies;
- the clinical indications and patient populations for which the product candidate is approved;
- acceptance by physicians and patients of the drug as a safe and effective treatment;

- the administrative and logistical burden of treating patients;
- the adoption of novel cellular 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 its use outside the 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 from, and our ability to negotiate competitive pricing with, 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.

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 U.S. 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 from government health administration authorities, private health insurers and other organizations.

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. A primary trend in the healthcare industry is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Third-party payors may also seek additional clinical evidence, beyond the data required to obtain regulatory approval, demonstrating clinical benefits and value in specific patient populations before covering our products for those patients. 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. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain regulatory approval, and ultimately our ability to successfully commercialize any product candidate for which we obtain regulatory approval.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or comparable foreign regulatory authorities. Moreover, eligibility for coverage and reimbursement does not imply that any drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may only be temporary. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the U.S. Third-party payors in the U.S. often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. 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 a material 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 U.S. 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. In particular, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, collectively, the Affordable Care Act, was enacted, which substantially changes the way health care is financed by both governmental and private insurers, and significantly impacts the U.S. pharmaceutical industry. The Affordable Care Act and its implementing regulations, among other things, addressed a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for certain drugs and biologics, including our product candidates, increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program, extended the Medicaid Drug Rebate Program to utilization of prescriptions of individuals enrolled in Medicaid managed care organizations, subjected manufacturers to new annual fees and taxes for certain branded prescription drugs, provided incentives to programs that increase the federal government's comparative effectiveness research and established a new Medicare Part D coverage gap discount program.

Other legislative changes have been proposed and adopted in the U.S. since the Affordable Care Act was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by the U.S. Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013, and, due to subsequent legislative amendments, will remain in effect through 2027 unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012, or the ATRA, was enacted which, among other things, further reduced Medicare payments to several providers, including hospitals and outpatient clinics, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Since its enactment, there have been judicial and Congressional challenges to numerous elements of the Affordable Care Act, as well as efforts by both the executive and legislative branches of the federal government to repeal or replace certain aspects of the Affordable Care Act. For example, the President signed Executive Orders designed to delay the implementation of certain provisions of the Affordable Care Act or otherwise circumvent some of the requirements for health insurance mandated by the Affordable Care Act. In addition, the U.S. Congress has considered legislation that would repeal or repeal and replace all or part of the Affordable Care Act. While the U.S. Congress has not passed comprehensive repeal legislation, it has enacted laws that modify certain provisions of the Affordable Care Act, such as removing penalties, starting January 1, 2019, for not complying with the Affordable Care Act's individual mandate to carry health insurance, delaying the implementation of certain mandated fees, and increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D. In December 2018, a Texas U.S. District Court Judge ruled that the Affordable Care Act is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Cuts and Jobs Act of 2017, or the Tax Act. The Texas U.S. District Court Judge, as well as the presidential administration and the CMS, have stated that the ruling will have no immediate effect pending appeal of the decision, but the presidential administration has indicated that it plans to file a brief in support of the Texas U.S. District Court decision. In July 2019, a panel of federal judges in the U.S. Court of Appeals for the Fifth Circuit is hearing oral arguments in this case. It is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the Affordable Care Act will impact the Affordable Care Act and our business. The U.S. Congress may consider and adopt other legislation to repeal and replace all or certain elements of the Affordable Care Act. Any other executive, legislative or judicial action to "repeal and replace" all or part of the Affordable Care Act may have the effect of limiting the amounts that government agencies will pay for healthcare products and services, which could result in reduced demand for our products or additional pricing pressure, or may lead to significant deregulation, which could make the introduction of competing products and technologies much easier. Policy changes, including potential modification or repeal of all or parts of the Affordable Care Act or the implementation of new health care legislation, could result in significant changes to the health care system which may adversely affect our business in unpredictable ways.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. We cannot predict the initiatives that may be adopted in the future. The continuing efforts of governments, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare, including by imposing price controls, may adversely affect the demand for our product candidates for which we obtain regulatory approval and our ability to set a price that we believe is fair for our products. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA or foreign regulations, guidance or interpretations will be changed, or what the impact of these changes on the regulatory approvals of our product candidates, if any, may be. In the U.S., the European Union and other potentially significant markets for our product candidates, government authorities and third-party payors are increasingly attempting to limit or regulate the price of medical products and services, particularly for new and innovative products and therapies, which has resulted in lower average selling prices. For example, in the U.S., there have been several recent Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. Additionally, in May 2018, the U.S. presidential administration laid out a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. HHS has started the process of soliciting feedback on some of these measures and, at the same time, is immediately implementing others under its existing authority. In January 2019, the HHS Office of Inspector General proposed modifications to U.S. federal healthcare Anti-Kickback Statute safe harbors which, among other things, will affect rebates paid by manufacturers to Medicare Part D plans, the purpose of which is to further reduce the cost of drug products to consumers. Although some of these and other proposals may require additional authorization to become effective, members of Congress and the presidential administration have indicated that they will continue to seek new legislative or administrative measures to control drug costs. 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, to encourage importation from other countries and bulk purchasing. Furthermore, the increased emphasis on managed healthcare in the U.S. and on country and regional pricing and reimbursement controls in the European Union will put additional pressure on product pricing, reimbursement and usage, which may adversely affect our future product sales. These pressures can arise from rules and practices of managed care groups, judicial decisions and governmental laws and regulations related to Medicare, Medicaid and healthcare reform, pharmaceutical reimbursement policies and pricing in general.

In addition, there is significant uncertainty regarding the reimbursement status of newly approved healthcare products. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the cost-effectiveness of our products. If third-party payors do not consider our products to be cost-effective compared to other therapies, the payors may not cover our products after approved as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products on a profitable basis.

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

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

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

We face competition from numerous pharmaceutical and biotechnology enterprises, as well as from academic institutions, government agencies and private and public research institutions for our current product candidates. Our commercial opportunities will be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer side effects or are less expensive than any products that we may develop. Additionally, our commercial opportunities will be reduced or eliminated if novel upstream products or changes in treatment protocols reduce the overall incidence or prevalence of our current or future target diseases. Competition could result in reduced sales and pricing pressure on our product candidates, if approved by applicable regulatory authorities. In addition, significant delays in the development of our product candidates could allow our competitors to bring products to market before us and impair any ability to commercialize our product candidates.

There are currently no FDA- or EMA-approved products for the treatment ofEBV+ PTLD. However, some marketed products and therapies are used off-label in the treatment of EBV+ PTLD, such as rituximab and combination chemotherapy regimens. In

addition, a number of companies and academic institutions are developing drug candidates for EBV+ PTLD and other EBV-associated diseases including: Viracta Therapeutics, Inc., which is conducting a Phase 1b/2 clinical study for nanatinostat (formerly named tractinostat, or VRx-3996) in combination with antiviral drug valganciclovir in relapsed/refractory EBV+ lymphomas, AlloVir (formerly known as ViraCyte), which has completed a Phase 2 clinical study for Viralym-M (ALVR105), an allogeneic, multi-virus T-cell product that targets five viruses including EBV and is planning to initiate several Phase 3 studies in the next year and Tessa Therapeutics Pte Ltd., or Tessa, which is developing an allogeneic CD30-CAR EBV-specific T cell product that is based on an ongoing Phase 1 clinical study of allogeneic EBVSTs in EBV-associated lymphomas (MABEL).

Competition in the MS market is high with at least seventeen therapies, including three generics, approved for the treatment of relapsing-remitting multiple sclerosis, or RRMS, in the U.S. and EU. There are many competitors in the RRMS market, including major multi-national fully-integrated pharmaceutical companies and established biotechnology companies. Most recently, Mayzent® (siponimod), marketed by Novartis and Mavenclad® (cladribine), marketed by EMD Serono were approved for the treatment of relapsing forms of MS in the U.S. There are numerous development candidates in Phase 3 studies for RRMS including TG Therapeutics' anti-CD20 monoclonal antibody ublituximab and J&J/Actelion's next-generation sphingosine 1-phosphate receptor (S1PR) agonist ponesimod. Novartis' anti-CD20 monoclonal antibody ofatumumab has completed its Phase 3 study and plans to file for regulatory approval in the future. There are also several therapeutic candidates awaiting FDA and/or EMA regulatory approval including Biogen's diroximel fumarate (trade name - Vumerity, a next-generation oral fumarate) and Celgene's ozanimod, an S1PR1 and S1PR5 agonist.

Six therapies have been approved for the treatment of progressive MS. Ocrevus® is approved in the U.S. and EU for the treatment of primary progressive MS, or PPMS. Extavia® (marketed by Novartis) and Betaseron® (marketed by Bayer AG) are approved in the European Union for the treatment of secondary progressive MS, or SPMS. Mayzent® (siponimod), marketed by Novartis and Mavenclad® (cladribine), marketed by EMD Serono, were most recently approved for the treatment of active SPMS in the U.S. Prior to the approvals of Mayzent and Mavenclad in 2019, there was only one drug (mitoxantrone) approved to treat SPMS in the U.S., which is now generic.

The SPMS and PPMS markets have active development pipelines and additional novel agents could be approved in the future. Several development candidates are being evaluated in Phase 3 studies for progressive forms of MS including primary and secondary progressive MS. These are MedDay's MD-1003, a concentrated form of biotin, and AB Science's masitinib, a tyrosine kinase inhibitor. Medicinova is planning to initiate a Phase 3 study of its PDE inhibitor, ibudilast (MN166) in patients with non-relapsing secondary progressive MS.

There are currently two CAR-T therapies approved in the U.S. and EU, Novartis' Kymriah (tisagenlecleucel) and Gilead/Kite's Yescarta (axicabtagene ciloleucel). However, given the explosion of innovation in this area, there are more than 100 CAR T's in development including at least 35 which are allogeneic and off-the-shelf cell therapies. Depending on the diseases that we target in the future, we may face competition from both CAR-T therapies and other modalities (e.g. small molecules, antibodies) in the indication of interest.

Many of the approved or commonly used drugs and therapies for our current or future target diseases, including EBV+ PTLD and MS, are well established and are widely accepted by physicians, patients and third-party payors. Some of these drugs are branded and subject to patent protection, and other drugs and nutritional supplements are available on a generic basis. Insurers and other third-party payors may encourage the use of generic products or specific branded products. We expect that, if any of our product candidates are approved, they will be priced at a significant premium over competitive generic products. This pricing premium may make it difficult for us to differentiate our products from currently approved or commonly used therapies and impede adoption of our products, which may adversely impact our business. In addition, many companies are developing new therapeutics, and we cannot predict what the standard of care will become as our products continue in clinical development.

Many of our competitors or potential competitors have significantly greater established presence in the market, financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical studies, obtaining regulatory approvals and marketing approved products than we do, and as a result may have a competitive advantage over us. Smaller or early-stage companies may also prove to be significant competitors, including through collaborative arrangements with large and established companies or if they are acquired by larger companies. These third parties compete with us in recruiting and retaining qualified scientific, commercial and management personnel, establishing clinical study sites and patient registration for clinical studies, as well as in acquiring technologies and technology licenses complementary to our programs or advantageous to our business.

As a result of these factors, these competitors may obtain regulatory approval of their products before we are able to obtain patent protection or other intellectual property rights, which will limit our ability to develop or commercialize our product candidates. Our competitors may also develop drugs that are safer, more effective, more widely used and cheaper than ours, and may also be more successful than us in manufacturing and marketing their products. These appreciable advantages could render our product candidates obsolete or noncompetitive before we can recover the expenses of development and commercialization.

We expect the product candidates we develop will be regulated as biological products, or biologics, and therefore they may be subject to competition sooner than anticipated.

The Biologics Price Competition and Innovation Act of 2009, or BPCIA, was enacted as part of the Affordable Care Act to establish an abbreviated pathway for the approval of biosimilar and interchangeable biological products. The regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" based on its similarity to an approved biologic. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the reference product was approved under a BLA. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation, and meaning are subject to uncertainty. While it is uncertain when processes intended to implement BPCIA may be fully adopted by the FDA, any of these processes could have a material adverse effect on the future commercial prospects for our biological products.

We believe that any of the product candidates we develop that is approved in the U.S. as a biological product under a BLA should qualify for the 12-year period of exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider the subject product candidates to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of the reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

In addition, the approval of a biologic product biosimilar to one of our products could have a material adverse impact on our business as it may be significantly less costly to bring to market and may be priced significantly lower than our products.

If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to market and sell our product candidates, we may be unable to generate any revenue.

We are at any early stage of establishing an organization that will be responsible for the sale, marketing and distribution of pharmaceutical products and the cost of establishing and maintaining such an organization may exceed the cost-effectiveness of doing so. In order to market any products that may be approved by the FDA and comparable foreign regulatory authorities, we must build our sales, marketing, managerial and other non-technical capabilities or make arrangements with third parties to perform these services. There are significant risks involved in building and managing a sales organization, including our ability to hire, retain and incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may be competing with many companies that currently have extensive and well-funded sales and marketing operations. Without a sufficiently scaled, appropriately timed and trained internal commercial organization or the support of a third party to perform sales and marketing functions, we may be unable to compete successfully against these more established companies.

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

As of September 30, 2019, we had 372 employees. We have made the decision to grow the size of our organization in order to support our continued development and potential commercialization of our product candidates. In particular, we may need to add substantial numbers of additional personnel and other resources to support our development and potential commercialization of our product candidates. 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. Our management, personnel and systems currently in place may not be adequate to support this future growth. Future growth would impose significant added responsibilities on members of management, including:

- managing our preclinical and clinical studies effectively;
- identifying, recruiting, maintaining, motivating and integrating additional employees;
- managing our internal development efforts effectively while complying with our contractual obligations to licensors, licensees, contractors and other third parties;
- improving our managerial, development, operational, information technology, and finance systems; and
- expanding our facilities.

As our operations expand, we will also need to manage additional relationships with various strategic partners, suppliers and other third parties. 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 and clinical studies 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.

Risks Related to Our Business Generally

Our future success depends on our ability to retain our executive officers and to attract, retain and motivate qualified personnel.

We are highly dependent upon our executive officers and other key employees and the loss of the services of any of our executive officers or other key employees, including scientific, technical or management personnel, could impede the achievement of our corporate objectives.

Our success depends on our ability to recruit, retain, manage and motivate our employees. Although we enter into employment agreements or offer letters with our employees, these documents provide for “at-will” employment, which means that any of our employees could leave our employment at any time, with or without notice. Competition for skilled personnel in our industry and geographic regions is intense and may limit our ability to hire and retain qualified personnel on acceptable terms or at all. To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have provided equity awards that vest over time. The value to employees of equity awards may be significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies.

Our relationships with customers and third-party payors will be subject to applicable anti-kickback, fraud and abuse, privacy and other laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

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. Our current and future arrangements with 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 conduct research and would market, sell and distribute our products. As a pharmaceutical company, even though we do not and 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. Restrictions under applicable federal and state healthcare laws and regulations that may affect our ability to operate include the following:

- the federal healthcare Anti-Kickback Statute will constrain our marketing practices, educational programs, pricing policies, and relationships with healthcare providers or other entities, by prohibiting, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under a federal healthcare program such as Medicare and Medicaid;
- federal civil and criminal false claims laws and civil monetary penalty laws impose criminal and civil penalties, including through civil whistleblower or qui tam actions available under the federal civil False Claims Act, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, claims for payment or approval that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program and also created federal criminal laws that prohibit knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statements in connection with the delivery of or payment for healthcare benefits, items or services;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, also imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information held by covered entities and their business associates;
- the federal physician sunshine requirements under the Affordable Care Act requires manufacturers of drugs, devices, biologics and medical supplies to report annually to CMS information related to payments and other transfers of value to physicians, other healthcare providers, and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members and applicable group purchasing organizations;
- state and foreign laws and regulations that are analogous to the federal laws and regulations described in the preceding subsections of this risk factor, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; and
- some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government; some state laws require drug manufacturers to report information regarding pricing and marketing information related to payments and other transfers of value to physicians and other healthcare providers; some state and local laws require the registration of pharmaceutical sales representatives; and other state laws require the protection of the privacy and security of health information, which may differ from each other in significant ways and often are not preempted by HIPAA.

Efforts to ensure that our business arrangements with third parties comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations or case law involving applicable healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations, we may be subject to significant civil, criminal and administrative penalties, damages, fines, imprisonment, exclusion from government-funded healthcare programs, such as Medicare and Medicaid, disgorgement, additional reporting requirements or oversight if we become subject to a corporate integrity agreement or similar agreement, and the curtailment or restructuring of our operations. 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, they may be subject to criminal, civil or administrative sanctions, including exclusions from government-funded healthcare programs.

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

We are exposed to the risk of employee fraud or other misconduct, 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. Employee misconduct could also involve the improper use of information obtained in the course of clinical studies, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant fines or other sanctions.

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 studies 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 studies, 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 study sites or entire study programs;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical study participants;
- significant costs to defend the related litigation;
- substantial monetary awards to study 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. 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.

If we and our third-party manufacturers fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We and our third-party manufacturers are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our or our third-party manufacturers' use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials with a policy limit that we believe is customary for similarly situated companies and adequate to provide us with insurance coverage for foreseeable risks, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological or hazardous materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions, which could adversely affect our business, financial condition, results of operations and prospects.

Our business and operations would suffer in the event of computer system failures or security breaches.

Our internal computer systems, and those of our partners, our CROs, our CMOs, and other business vendors on which we rely, are vulnerable to damage from computer viruses, unauthorized access, natural disasters, fire, terrorism, war and telecommunication and electrical failures. We exercise little or no control over these third parties, which increases our vulnerability to problems with their systems. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our drug development programs. For example, the loss of clinical study data from completed, ongoing or planned clinical studies could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach results in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability, the further development of our product candidates could be delayed and our business could be otherwise adversely affected.

The U.S. tax reform bill passed in 2017 could adversely affect our business and financial condition.

Legislation or other changes in tax laws could lead to or increase our tax liability and adversely affect our after-tax profitability. For example, The Tax Act was enacted in the U.S. on December 22, 2017. Given our valuation allowance position, The Tax Act is not expected to have a significant impact on our effective tax rate, cash tax expenses or net deferred tax assets. The Tax Act among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%; limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses); limitation of the deduction of net operating losses generated in tax years beginning after December 31, 2017 to 80% of taxable income, indefinite carryforward of net operating losses generated in tax years after 2018 and elimination of net operating loss carrybacks; changes in the treatment of offshore earnings regardless of whether they are repatriated; current inclusion in U.S. federal taxable income of certain earnings of controlled foreign corporations, mandatory capitalization of research and development expenses beginning in 2022; immediate deductions for certain new investments instead of deductions for depreciation expense over time; further deduction limits on executive compensation; and modifying, repealing and creating many other business deductions and credits, including the reduction in the orphan drug credit from 50% to 25% of qualifying expenditures. We completed an evaluation of the overall impact of The Tax Act on our effective tax rate and balance sheet through December 31, 2018 and have reflected the amounts in our financial statements. The Tax Act may have significant impacts in future periods and our business and financial condition could be adversely affected. The future impact of the Tax Act on holders of our common stock is also uncertain and could be adverse.

Our ability to use net operating loss carryforwards to offset future taxable income, and our ability to use tax credit carryforwards, may be subject to certain limitations.

Our ability to use our federal and state net operating losses, or NOLs, to offset potential future taxable income and related income taxes that would otherwise be due is dependent upon our generation of future taxable income, and we cannot predict with certainty when, or whether, we will generate sufficient taxable income to use all of our NOLs.

As of December 31, 2018, we reported U.S. federal and state NOLs of approximately $293.9 million and $449.8 million, respectively. Our federal NOLs generated prior to 2018 aggregating to $77.1 million will continue to be governed by the NOL tax rules as they existed prior to the adoption of the Tax Act, which means that generally they will expire 20 years after they were generated if not used prior thereto. Many states have similar laws, and our state NOLs will begin to expire in 2032. Accordingly, these federal and state NOLs could expire unused and be unavailable to offset future income tax liabilities. Under the newly enacted Tax Act, federal NOLs incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal NOL's is limited to 80% of current year taxable income. Not all states conform to the Tax Act and other states have varying conformity to the Tax Act.

In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code,our ability to utilize these NOLs and other tax attributes, such as federal tax credits, in any taxable year may be limited if we have experienced an "ownership change." Generally, a Section 382 ownership change occurs if one or more stockholders or groups of stockholders who owns at least 5% of a corporation's stock increases its ownership by more than 50 percentage points over its lowest ownership percentage within a three-year testing period. Similar rules may apply under state tax laws. We completed a Section 382 study of transactions in our stock through December 31, 2018 and concluded that we have experienced ownership changes since inception that we believe under Section 382 of the Code will result in limitations in our ability to use certain of our NOLs and credits. In addition, we may experience subsequent ownership changes as a result of our July 2019 financing and future offerings or other changes in the ownership of our stock, some of which are beyond our control. As a result, the amount of the NOLs and tax credit carryforwards presented in our financial statements could be limited and, in the case of NOLs generated in 2017 and before, may expire unused. Any such material limitation or expiration of our NOLs may harm our future operating results by effectively increasing our future tax obligations.

Business disruptions could seriously harm our future revenues and financial condition and increase our costs and expenses.

Our operations could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or manmade disasters or business interruptions, for which we are predominantly self-insured. Two of our corporate locations are located in California, an area prone to earthquakes and fires. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses. We rely on third-party manufacturers to produce our product candidates. Our ability to obtain clinical supplies of product candidates could be disrupted, if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption.

Risks Related to Ownership of Our Common Stock

Our stock price has been and will likely continue to be volatile and may decline regardless of our operating performance.

Our stock price has fluctuated in the past and can be expected to be volatile in the future. From January 1, 2017 through September 30, 2019, the reported sale price of our common stock has fluctuated between $11.50 and $54.45 per share. The stock market in general and the market for biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may experience losses on their investment in our common stock. The market price of our common stock may be influenced by many factors, including the following:

- the success of competitive products or technologies;
- regulatory actions with respect to our product candidates or products or our competitors' product candidates or products;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations or capital commitments;
- results of clinical studies of our product candidates or those of our competitors;
- regulatory or legal developments in the U.S. and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- the results of our efforts to in-license or acquire additional product candidates or products;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- variations in our financial results or those of companies that are perceived to be similar to us;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- inconsistent trading volume levels of our shares;
- announcement or expectation of additional financing efforts;

- sales of our common stock by us, our insiders or our other stockholders;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other risks described in this "Risk Factors" section.

In addition, the stock markets in general, and the markets for biotechnology and pharmaceutical stocks in particular, have experienced significant volatility that has often been unrelated to the operating performance of particular companies. For example, negative publicity regarding drug pricing and price increases by pharmaceutical companies has negatively impacted, and may continue to negatively impact, the markets for biotechnology and pharmaceutical stocks. Likewise, as a result of significant changes in U.S. social, political, regulatory and economic conditions or in laws and policies governing foreign trade and health care spending and delivery, including the possible repeal and/or replacement of all or portions of the Affordable Care Act or changes in tariffs and other restrictions on free trade stemming from U.S. and foreign government policies, or for other reasons, the financial markets could experience significant volatility that could also negatively impact the markets for biotechnology and pharmaceutical stocks. These market fluctuations may adversely affect the trading price of our common stock.

In the past, class action litigation has often been instituted against companies whose securities have experienced periods of volatility in market price. Any such litigation brought against us could result in substantial costs and divert management's attention and resources, which could result in delays of our clinical studies or commercialization efforts.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Our executive officers, directors and principal stockholders own a significant portion of our outstanding common stock. These stockholders may be able to determine the outcome of all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock. The interests of our significant stockholders may not always coincide with the interests of other stockholders and they may act in a manner that advances their best interests and not necessarily those of other stockholders, including seeking a premium value for their common stock, and might affect the market price for our common stock.

Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall.

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 the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. Moreover, certain holders of shares of our common stock will have rights, subject to certain conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We have registered and intend to continue to register all shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates.

Effective December 31, 2018, we are no longer an "emerging growth company," and the reduced reporting requirements applicable to "emerging growth companies" no longer apply, which increases our costs as a result of being a public company and places additional demands on management.

Effective December 31, 2018, we were no longer classified as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act, or JOBS Act. As such, we will incur significant additional expenses that we did not previously incur in complying with the Sarbanes-Oxley Act and rules implemented by the SEC. Because we are no longer being classified as an "emerging growth company", the cost of compliance with Section 404 has required, and will continue to require, us to incur substantial accounting expense and expend significant management time on compliance-related issues as we implement additional corporate governance practices and comply with reporting requirements. Moreover, if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources.

Furthermore, investor perceptions of our company may suffer if, in the future, material weaknesses are found, and this could cause a decline in the market price of our stock. Irrespective of compliance with Section 404, any failure of our internal control over financial reporting could have a material effect on our stated operating results. If we are unable to implement these changes effectively or efficiently, it could harm our operations, financial reporting or financial results and could result in an adverse opinion on internal control from our independent registered public accounting firm.

In addition, we have previously taken advantage of the JOBS Act's reduced disclosure requirements applicable to "emerging growth companies" regarding executive compensation and exemptions from the requirements of holding advisory say-on-pay votes on executive compensation. Since we are no longer classified as an "emerging growth company," we are no longer eligible for such reduced disclosure requirements and exemptions and as such, we are required to hold a say-on-pay vote and a say-on-frequency vote at our 2019 annual meeting of stockholders. As a result, we expect that because we are no longer classified as an "emerging growth company,"we will require additional attention from management with respect to our disclosures and will incur increased costs, which could include higher legal fees, accounting fees, consultant fees and fees associated with investor relations activities, among others.

We have incurred and will continue to incur increased costs as a result of being a public company and our management expects to devote substantial time to public company compliance programs.

As a public company, we have incurred and will continue to incur significant legal, accounting and other expenses. We are subject to the reporting requirements of the Exchange Act, which require, among other things, that we file with the SEC annual, quarterly and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and The Nasdaq Stock Market to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the SEC has adopted and will adopt additional rules and regulations, such as mandatory "say on pay" voting requirements, that now apply to us. Stockholder activism, the current political environment and the potential for future regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

The rules and regulations applicable to public companies have substantially increased our legal and financial compliance costs and make some activities more time-consuming and costly. To the extent these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition and results of operations. The increased costs will decrease our net income or increase our net loss and may require us to reduce costs in other areas of our business or increase the prices of our products or services.

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

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be the sole source of gain for our stockholders for the foreseeable future.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that significant additional capital will be needed in the future to continue our planned operations. To raise capital, we may sell substantial amounts of common stock or securities convertible into or exchangeable for common stock in one or more transactions at prices and in a manner we determine from time to time. These future issuances of common stock or common stock-related securities, together with the exercise of outstanding options, the exercise of outstanding warrants, and any additional shares issued in connection with acquisitions or in-licenses, if any, may result in material dilution to our investors. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to those of holders of our common stock. Pursuant to our equity incentive plans, our compensation committee is authorized to grant equity-based incentive awards to our employees, non-employee directors and consultants. Future grants of RSUs, options and other equity awards and issuances of common stock under our equity incentive plans will result in dilution and may have an adverse effect on the market price of our common stock.

Some terms of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders and may prevent attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation, or Certificate of Incorporation, and amended and restated bylaws, or Bylaws, as well as Delaware law, could make it more difficult for a third party to acquire us or increase the cost of acquiring us, even if doing so would benefit our stockholders, or remove our current management. These include terms that:

- permit our board of directors to issue up to 20,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate;
- provide that all vacancies on our board of directors, including as a result of newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;

- establish that our board of directors is divided into three classes, with each class serving three-year staggered terms, which makes it more difficult to replace a majority of our directors in a short period of time;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide advance notice in writing, and also specify requirements as to the form and content of a stockholder's notice;
- not provide for cumulative voting rights, thereby allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election; and
- provide that special meetings of our stockholders may be called only by our board of directors, the chairperson of our board of directors or our chief executive officer.

Any of the factors listed above 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, who are responsible for appointing the members of our management.

In addition, because we are incorporated in Delaware, we are governed by Section 203 of the Delaware General Corporation Law, which may discourage, delay or prevent someone from acquiring us or merging with us whether or not it is desired by or beneficial to our stockholders. Under Delaware law, a corporation may not, in general, engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other things, the board of directors has approved the transaction. Any term of our Certificate of Incorporation or Bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock and could also affect the price that some investors are willing to pay for our common stock.

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 and our business. In the event securities or industry analysts who cover us downgrade our stock or publish unfavorable research about us or 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.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit No.	Description of Exhibit	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation of Atara Biotherapeutics, Inc.	S-1	333-196936	3.2	6/20/2014	
3.2	Amended and Restated Bylaws of Atara Biotherapeutics, Inc.	S-1	333-196936	3.4	6/20/2014	
4.1	Form of Pre-Funded Warrant to Purchase Common Stock	8-K	001-36548	4.1	7/22/2019	
10.1*	Form of Restricted Stock Unit Agreement and Restricted Stock Unit Grant Notice under the Amended and Restated 2014 Equity Incentive Plan					X
10.2*	Form of Restricted Stock Unit Agreement and Restricted Stock Unit Grant Notice under the 2018 Inducement Plan					X
10.3+	Second Amended and Restated Research and Development Collaboration Agreement, by and between Atara Biotherapeutics, Inc. and the Counsel of the Queensland Institute of Medical Research, dated August 28, 2019					X
10.4+	Second Amended and Restated Exclusive License Agreement, by and between Atara Biotherapeutics, Inc. and the Counsel of the Queensland Institute of Medical Research, dated August 28, 2019					X
10.5+	Amended and Restated Amendment No. 2 to the Development and Manufacturing Services Agreement, by and between Atara Biotherapeutics, Inc. and Cognate BioServices, Inc., dated November 4, 2018					X
10.6+	Amendment No. 3 to the Development and Manufacturing Services Agreement, by and between Atara Biotherapeutics, Inc. and Cognate BioServices, Inc., dated June 28, 2019					X
31.1	Certification by Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification by Principal Financial and Accounting Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
32.1(1)	Certifications of Chief Executive Officer and Principal Financial and Accounting Officer pursuant to 18 U.S.C Section 1350 as adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002.					X
101.INS	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					X

101.SCH	Inline XBRL Schema Document	X
101.CAL	Inline XBRL Calculation Linkbase Document	X
101.LAB	Inline XBRL Labels Linkbase Document	X
101.PRE	Inline XBRL Presentation Linkbase Document	X
101.DEF	Inline XBRL Definition Linkbase Document.	X
104	The cover page from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in Inline XBRL.	X

* Indicates management contract or compensatory plan or arrangement.

\+ Portions of this exhibit have been omitted as being immaterial and would be competitively harmful if publicly disclosed.

(1) 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.

SIGNATURES

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

ATARA BIOTHERAPEUTICS, INC.

Date: November 7, 2019

By: /s/ Pascal Touchon
Pascal Touchon
President and Chief Executive Officer
(Duly Authorized Officer and Principal Executive Officer)

By: /s/ Utpal Koppikar
Utpal Koppikar
Chief Financial Officer
(Duly Authorized Officer and Principal Financial and Accounting Officer)

Exhibit 10.1

ATARA BIOTHERAPEUTICS, INC.
RESTRICTED STOCK UNIT GRANT NOTICE
(2014 Equity Incentive Plan)

Atara Biotherapeutics, Inc. (the "***Company***"), pursuant to its 2014 Equity Incentive Plan (the "***Plan***"), hereby awards to Participant a Restricted Stock Unit Award for the number of shares of the Company's Common Stock set forth below (the "***Award***"). The Award is subject to all of the terms and conditions as set forth herein and in the Plan and the Restricted Stock Unit Award Agreement, both of which are attached hereto and incorporated herein in their entirety. Capitalized terms not otherwise defined herein will have the meanings set forth in the Plan or the Restricted Stock Unit Award Agreement. In the event of any conflict between the terms in the Award and the Plan, the terms of the Plan will control.

Participant:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Units/Shares Subject to Award:	_____

Vesting Schedule: [ ]

Issuance Schedule: Notwithstanding Section 6(a) of the attached Restricted Stock Unit Award Agreement, to the extent the Award vests as provided for above, the Company will deliver one share of Common Stock for each vested Restricted Stock Unit not previously settled at the Settlement Time.

"***Settlement Time***" means promptly following the applicable vesting date, and, in any event, not later than March 15 of the calendar year following the calendar year in which such vesting occurs.

Tax Withholding: ***IMPORTANT INFORMATION REGARDING ACCEPTANCE OF THE AWARD AND SELL TO COVER ELECTION***

By accepting this Award, to the greatest extent permitted under the Plan and applicable law, any withholding obligations for applicable Tax-Related Items (as defined in Section 10 of the Restricted Stock Unit Award Agreement) will be satisfied through the sale of a number of the shares of Common Stock subject to the Award as determined in accordance with Section 10 of the Restricted Stock Unit Award Agreement and the remittance of the cash proceeds of such sale to the Company (a "***Sell to Cover***"). Under the Restricted Stock Unit Award Agreement, the Company is authorized and directed by Participant to make payment from the cash proceeds of this sale directly to the appropriate taxing authorities in an amount equal to the withholding obligation for Tax-Related Items.

Participant may, during an open trading window under the Company's insider trading policy and when Participant is not otherwise in possession of material nonpublic information with respect to the Company, at least 90 days prior to the date upon which any portion of the Award vests, through a mandatory arrangement with Agent (as defined in Section 10 of the Restricted Stock Unit Award Agreement), irrevocably opt out of the Sell to Cover with respect to the shares to be issued on such vesting date and elect either of the following means to satisfy the Tax-Related Items: (i) the sale of all shares to be issued on such vesting date, with the proceeds from the number of the shares of Common Stock subject to the Award as determined in accordance with Section 10 of the Restricted Stock Unit Award Agreement to be remitted to the Company to satisfy the Tax-Related Items, and the remaining proceeds to be remitted to the Participant; or (ii) the Participant shall tender a cash payment in any amount specified by the Company to satisfy the Tax-Related Items (which may be in the form of a check, electronic wire transfer or other method permitted by the Company) to the Company.

Participant represents and warrants that (i) Participant has carefully reviewed this Restricted Stock Unit Grant Notice and Section 10 of the Restricted Stock Unit Award Agreement, (ii) on the date Participant accepts this Award or makes an election pursuant to the foregoing paragraph, he or she is not aware of any material, nonpublic information with respect to the Company or any securities of the Company, is not subject to any legal, regulatory or contractual restriction that would prevent Agent from conducting sales, does not have, and will not attempt to exercise, authority, influence or control over any sales of Common Stock effected by the Agent pursuant to the Restricted Stock Unit Award Agreement, and is entering into the Restricted Stock Unit Award Agreement and any such election in good faith and not as part of a plan or scheme to evade the prohibitions of Rule 10b5-1 (regarding trading of the Company's securities on the basis of material nonpublic information) under the Securities Exchange Act of 1934, as amended (the "***Exchange Act***"), and (iii) it is Participant's intent that this election comply with the requirements of Rule 10b5-1(c)(1) under the Exchange Act and be interpreted to comply with the requirements of Rule 10b5-1(c) under the Exchange Act.

Additional Terms/Acknowledgements: Participant acknowledges receipt of, and understands and agrees to, this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Award Agreement and the Plan. Participant further acknowledges that as of the Date of Grant, this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Award Agreement and the Plan set forth the entire understanding between Participant and the Company regarding this Award and supersede all prior oral and written agreements, promises and/or representations on that subject with the exception of (i) equity awards previously granted and delivered to Participant, (ii) any compensation recovery policy that is adopted by the Company or is otherwise required by applicable law and (iii) any written employment or severance arrangement that would provide for vesting acceleration of this award upon the terms and conditions set forth therein.

Participant may accept this Award electronically by means of reviewing and accepting the Grant Documents (as defined below) through the electronical brokerage account established for Company equity plans. By accepting the Award, Participant acknowledges having received and read the Restricted Stock Unit Grant Notice, the Restricted Stock Unit Award Agreement and the Plan (the "***Grant Documents***") and agrees to all of the terms and conditions set forth in these documents. Furthermore, by accepting the Award, Participant consents to receive such documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

Notwithstanding the above, if Participant has not actively accepted the Award within 90 days of the first vesting date set forth in this Restricted Stock Unit Grant Notice, Participant is deemed to have accepted the Award, subject to all of the terms and conditions of the Grant Documents.

Atara Biotherapeutics, Inc.

By: _____
Signature

Title: _____

Date: _____

Attachments: Restricted Stock Unit Award Agreement, 2014 Equity Incentive Plan

Attachment I

Atara Biotherapeutics, Inc.
Restricted Stock Unit Award Agreement
(2014 Equity Incentive Plan)

Pursuant to the Restricted Stock Unit Grant Notice (the "***Grant Notice***") and this Restricted Stock Unit Award Agreement (the "***Agreement***") and in consideration of your services, Atara Biotherapeutics, Inc. (the "***Company***") has awarded you a Restricted Stock Unit Award (the "***Award***") under its 2014 Equity Incentive Plan (the "***Plan***"). The Award is granted to you effective as of the Date of Grant set forth in the Grant Notice for this Award. Defined terms not explicitly defined in this Agreement will have the same meanings given to them in the Plan. In the event of any conflict between the terms in this Agreement and the Plan, the terms of the Plan will control. The details of the Award, in addition to those set forth in the Grant Notice and the Plan, are as follows.

1. Grant of the Award. The Award represents the right to be issued on a future date the number of shares of the Company's Common Stock as indicated in the Grant Notice upon the satisfaction of the terms set forth in this Agreement. Except as otherwise provided herein, you will not be required to make any payment to the Company with respect to your receipt of the Award, the vesting of the shares or the delivery of the underlying Common Stock.

2. Vesting. Subject to the limitations contained herein, the Award will vest, if at all, in accordance with the vesting schedule provided in the Grant Notice, provided that vesting will cease upon the termination of your Continuous Service. Upon such termination of your Continuous Service, the shares credited to the Account that were not vested on the date of such termination will be forfeited at no cost to the Company and you will have no further right, title or interest in or to such underlying shares of Common Stock.

3. Number of Shares.

(a) The number of units/shares subject to the Award may be adjusted from time to time for Capitalization Adjustments, as provided in the Plan.

(b) Any shares, cash or other property that becomes subject to the Award pursuant to this Section 3 and Section 7, if any, will be subject, in a manner determined by the Board, to the same forfeiture restrictions, restrictions on transferability, and time and manner of delivery as applicable to the other shares covered by the Award.

(c) Notwithstanding the provisions of this Section 3, no fractional shares or rights for fractional shares of Common Stock will be created pursuant to this Section 3. The Board will, in its discretion, determine an equivalent benefit for any fractional shares or fractional shares that might be created by the adjustments referred to in this Section 3.

4. Securities Law and Other Compliance. You may not be issued any shares under the Award unless either (a) the shares are registered under the Securities Act; or (b) the Company has determined that such issuance would be exempt from the registration requirements of the Securities Act. The Award also must comply with other applicable laws and regulations governing the Award, and you will not receive such shares if the Company determines that such receipt would not be in material compliance with such laws and regulations.

5. Transfer Restrictions.

(a) General. Prior to the time that shares of Common Stock have been delivered to you, you may not transfer, pledge, sell or otherwise dispose of this Award or the shares issuable in respect of the Award, except as expressly provided in this Section 5. For example, you may not use shares that may be issued in respect of the Award as security for a loan. The restrictions on transfer set forth herein will lapse upon delivery to you of shares in respect of the vested portion of the Award.

(b) Death. The Award is transferable by will and by the laws of descent and distribution. In addition, upon receiving written permission from the Board or its duly authorized designee, you may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company and any broker designated by the Company to effect transactions under the Plan, designate a third party who, in the event of your death, will thereafter be entitled to receive any distribution of Common Stock or other consideration to which you were entitled at the time of your death pursuant to this Agreement. In the absence of such a designation, your executor or administrator of your estate will be entitled to receive, on behalf of your estate, such Common Stock or other consideration.

(c) Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer the Award to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the Award is held in the trust, provided that you and the trustee enter into transfer and other agreements required by the Company.

(d) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized designee, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer the Award or your right to receive the distribution of Common Stock or other consideration thereunder, pursuant to a domestic relations order that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this Award with the Company prior to finalizing the domestic relations order to help ensure the required information is contained within the domestic relations order.

6. Date of Issuance.

(a) The Company will deliver to you a number of shares of the Company's Common Stock equal to the number of vested shares subject to the Award, including any additional shares received pursuant to Section 3 above that relate to those vested shares on the applicable vesting date(s). However, if a scheduled delivery date falls on a date that is not a business day, such delivery date will instead fall on the next following business day.

(b) Notwithstanding the foregoing, in the event that (i) you are subject to the Company's policy permitting certain individuals to sell shares only during certain "window" periods, in effect from time to time or you are otherwise prohibited from selling shares of the Company's Common Stock in the public market and any shares covered by the Award are scheduled to be delivered on a day (the "***Original Distribution Date***") that does not occur during an open "window period" applicable to you, as determined by the Company in accordance with such policy, or does not occur on a date when you are otherwise permitted to sell shares of the Company's Common Stock on the open market, and (ii) the Company satisfies its obligations for Tax-Related Items (as defined in Section 10) by withholding shares from your distribution, then such shares will not be delivered on such Original Distribution Date and will instead be delivered on the first business day of the next occurring open "window period" applicable to you pursuant to such policy (regardless of whether you are still providing Continuous Service at such time) or the next business day when you are not prohibited from selling shares of the Company's Common Stock in

the open market, but in no event later than the fifteenth (15th) day of the third calendar month of the calendar year following the calendar year in which the shares of Common Stock originally became vested. The form of such delivery (*e.g.*, a stock certificate or electronic entry evidencing such shares) will be determined by the Company. In all cases, the delivery of shares under this Award is intended to comply with Treasury Regulation Section 1.409A-1(b)(4) and will be construed and administered in such a manner.

7. Dividends. You will receive no benefit or adjustment to your Restricted Stock Units with respect to any cash dividend, stock dividend or other distribution except as provided in the Plan with respect to a Capitalization Adjustment.

8. Restrictive Legends. The shares issued under the Award will be endorsed with appropriate legends as determined by the Company.

9. Award not an Employment or Service Contract.

(a) Your Continuous Service with the Company or an Affiliate is not for any specified term and may be terminated by you or by the Company or an Affiliate at any time, for any reason, with or without cause and with or without notice. Nothing in this Agreement (including, but not limited to, the vesting of the Award pursuant to Section 2 or the issuance of the shares subject to the Award), the Plan or any covenant of good faith and fair dealing that may be found implicit in this Agreement or the Plan will: (i) confer upon you any right to continue in the employ of, or affiliation with, the Company or an Affiliate; (ii) constitute any promise or commitment by the Company or an Affiliate regarding the fact or nature of future positions, future work assignments, future compensation or any other term or condition of employment or affiliation; (iii) confer any right or benefit under this Agreement or the Plan unless such right or benefit has specifically accrued under the terms of this Agreement or Plan; or (iv) deprive the Company or an Affiliate of the right to terminate you at will and without regard to any future vesting opportunity that you may have.

(b) By accepting this Award, you acknowledge and agree that the right to continue vesting in the Award pursuant to Section 2 and the schedule set forth in the Grant Notice is earned only by continuing as an employee, director or consultant at the will of the Company or an Affiliate (not through the act of being hired, being granted this Award or any other award or benefit) and that the Company has the right to reorganize, sell, spin-out or otherwise restructure one or more of its businesses or Affiliates at any time or from time to time, as it deems appropriate (a "***reorganization***"). You further acknowledge and agree that such a reorganization could result in the termination of your Continuous Service, or the termination of Affiliate status of your employer and the loss of benefits available to you under this Agreement, including but not limited to, the termination of the right to continue vesting in the Award. You further acknowledge and agree that this Agreement, the Plan, the transactions contemplated hereunder and the vesting schedule set forth in the Grant Notice or any covenant of good faith and fair dealing that may be found implicit in any of them do not constitute an express or implied promise of continued engagement as an employee or consultant with the Company or an Affiliate for the term of this Agreement, for any period, or at all, and will not interfere in any way with your right or the right of the Company or an Affiliate to terminate your Continuous Service at any time, with or without cause and with or without notice.

10. Responsibility for Taxes.

(a) You acknowledge that, regardless of any action the Company or, if different, your employer (the "***Employer***") takes with respect to any or all income tax, social insurance, payroll tax, fringe benefit tax, payment on account or other tax-related withholding ("***Tax-Related Items***"), the ultimate liability for all Tax-Related Items is and remains your responsibility and may exceed the amount actually withheld by the Company or the Employer. You further acknowledge that the Company and the Employer

(i) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of your Restricted Stock Units, including the grant of the Restricted Stock Units, the vesting and settlement of the Restricted Stock Units, the delivery or sale of any shares of Common Stock and the issuance of any dividends, and (ii) do not commit to and are under no obligation to structure the terms of the grant or any aspect of your Award to reduce or eliminate your liability for Tax-Related Items or achiev e any particular tax result. You acknowledge and agree that you will not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates for Tax-Related Items arising from your Award or your other compensation. Further, if you are subject to Tax-Related Items in more than one jurisdiction, you ackno wledge that the Company and/or the Employer may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

(b) Prior to the relevant taxable or tax withholding event, as applicable, you agree to make adequate arrangements satisfactory to the Company and/or the Employer to satisfy all Tax-Related Items. Specifically, pursuant to Section 10(d) below, you have agreed to a "same day sale" commitment with a broker-dealer that is a member of the Financial Industry Regulatory Authority (a "***FINRA Dealer***") whereby you have (except as provided in Section 10(e) below) agreed to sell a portion of the shares of Common Stock to be delivered in connection with your Restricted Stock Units to satisfy any withholding obligations for Tax-Related Items and whereby the FINRA Dealer has committed to forward the proceeds necessary to satisfy any withholding obligations for Tax-Related Items directly to the Company and/or the Employer. If, for any reason, such "same day sale" commitment pursuant to Section 10 (d) does not result in sufficient proceeds to satisfy any withholding obligations for Tax-Related Items, you authorize the Company and/or the Employer, or their respective agents, at their discretion, to satisfy their withholding obligations with regard to all Tax-Related Items by one or a combination of the following: (i) withholding from your wages or other cash compensation paid to you by the Company or the Employer; (ii) withholding a number of shares of Common Stock having a fair market value determined by the Company as of the date of the relevant taxable or tax withholding event, as applicable, that are otherwise deliverable to you upon settlement; *provided, however,* that to the extent necessary to qualify for an exemption from application of Section 16(b) of the Exchange Act, if applicable, such share withholding procedure be subject to the express prior approval of the Compensation Committee; or (iv) causing you to tender a cash payment (which may be in the form of a check, electronic wire transfer or other method permitted by the Company).

(c) Depending on the withholding method, the Company or the Employer may withhold or account for Tax-Related Items by considering applicable minimum statutory withholding amounts or other applicable withholding rates, including maximum applicable rates, in which case you may receive a refund of any over-withheld amount in cash and will have no entitlement to the Common Stock equivalent. If the obligation for Tax-Related Items is satisfied by withholding in shares of Common Stock, for tax purposes, you are deemed to have been issued the full number of shares of Common Stock subject to the vested Restricted Stock Units notwithstanding that a number of the shares of Common Stock are held back solely for the purpose of paying the Tax-Related Items.

(d) You hereby acknowledge and agree to the following:

(i) I hereby appoint E*Trade (or any successor agent determined by the Company) as my agent (the "***Agent***"), and authorize the Agent to:

(1) Sell on the open market at the then-prevailing market price(s), on my behalf, as soon as practicable on or after each date on which shares of Common Stock underlying my Restricted Stock Units vest and are issued, the number (rounded up to the next whole number) of the shares of Common Stock to be delivered to me in connection with the vesting of those shares sufficient to generate proceeds to cover (1) the satisfaction of the Tax-Related Items arising from the vesting of the Award and the related issuance of shares of Common Stock to me, and (2) all applicable fees and commissions due to, or required to be collected by, the Agent with respect thereto;

(2) Remit directly to the Company and/or any Affiliate the proceeds necessary to satisfy the Tax-Related Items;

(3) Retain the amount required to cover all applicable fees and commissions due to, or required to be collected by, the Agent, relating directly to the sale of the shares of Common stock referred to in clause (1) above; and

(4) Remit any remaining funds to me.

(ii) I hereby authorize the Company and the Agent to cooperate and communicate with one another to determine the number of shares of Common Stock underlying my Restricted Stock Units that must be sold pursuant to this Section 10(d).

(iii) I acknowledge that the Agent is under no obligation to arrange for the sale of Common Stock at any particular price under this Section 10(d) and that the Agent may effect sales as provided in this Section 10(d) in one or more sales and that the average price for executions resulting from bunched orders may be assigned to my account. I further acknowledge that I will be responsible for all brokerage fees and other costs of sale associated with this Section 10(d), and I agree to indemnify and hold the Company harmless from any losses, costs, damages, or expenses relating to any such sales. In addition, I acknowledge that it may not be possible to sell shares of Common Stock as provided by in this Section 10(d) due to (i) a legal or contractual restriction applicable to me or the Agent, (ii) a market disruption, (iii) rules governing order execution priority on the national exchange where the Common Stock may be traded or (iv) applicable law restricting such sale. In the event of the Agent's inability to sell shares of Common Stock, I will continue to be responsible for the timely payment to the Company of all Tax-Related Items that are required by applicable laws and regulations to be withheld.

(iv) I acknowledge that regardless of any other term or condition of this Section 10(d), the Agent will not be liable to me for (a) special, indirect, punitive, exemplary, or consequential damages, or incidental losses or damages of any kind, or (b) any failure to perform or for any delay in performance that results from a cause or circumstance that is beyond its reasonable control.

(v) I hereby agree to execute and deliver to the Agent any other agreements or documents as the Agent reasonably deems necessary or appropriate to carry out the purposes and intent of this Section 10(d). The Agent is a third-party beneficiary of this Section 10(d).

(vi) This Section 10(d) shall terminate not later than the date on which all Tax-Related Items arising in connection with the Award have been satisfied.

(vii) I hereby authorize the Company to appoint a successor Agent should the above-named entity in (i) above (or its successor) resign as Agent or be replaced by the Company.

(e) You may, by notice delivered in accordance with the Restricted Stock Unit Grant Notice, at least 90 days prior to a vesting date, opt out of the "same day sale" commitment under Section 10(d) with respect to such vesting date, provided alternate arrangements acceptable to the Company to satisfy any withholding obligation for Tax-Related Items have been made, as described in Section 10(a) and the Restricted Stock Unit Grant Notice.

(f) You agree to pay to the Company or the Employer any amount of Tax-Related Items that the Company or the Employer may be required to withhold or account for as a result of your participation in the Plan that cannot be satisfied by the means previously described. You acknowledge and agree that the Company may refuse to issue or deliver the shares of Common Stock, or the proceeds of the sale of shares of Common Stock, if you fail to comply with your obligations in connection with the Tax-Related Items.

11. No Obligation to Minimize Taxes. You acknowledge that the Company is not making representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of the Award, including, but not limited to, the grant, vesting or settlement of the Award, the subsequent sale of shares of Common Stock acquired pursuant to such settlement and the receipt of any dividends and/or any dividend equivalent payments. Further, you acknowledge that the Company does not have any duty or obligation to minimize your liability for Tax-Related Items arising from the Award and will not be liable to you for any Tax-Related Items arising in connection with the Award.

12. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding your participation in the Plan, or your acquisition or sale of the underlying shares of Common Stock. You are hereby advised to consult with your own personal tax, financial and/or legal advisors regarding the Tax-Related Items arising in connection with the Award and by accepting the Award, you have agreed that you have done so or knowingly and voluntarily declined to do so.

13. Unsecured Obligation. The Award is unfunded, and as a holder of a vested Award, you will be considered an unsecured creditor of the Company with respect to the Company's obligation, if any, to issue shares pursuant to this Agreement. You will not have voting or any other rights as a stockholder of the Company with respect to the shares to be issued pursuant to this Agreement until such shares are issued to you pursuant to Section 6 of this Agreement. Upon such issuance, you will obtain full voting and other rights as a stockholder of the Company. Nothing contained in this Agreement, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

14. Other Documents. You hereby acknowledge receipt or the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

15. Notices. Any notices provided for in the Grant Notice, this Agreement or the Plan will be given in writing and will be deemed effectively given upon receipt or, in the case of notices delivered by the Company to you, five (5) days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company. Notwithstanding the foregoing, the Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan and this Award by electronic means or to request your consent to participate in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and, if requested, to agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

16. Miscellaneous.

(a) The rights and obligations of the Company under the Award will be transferable to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by the Company's successors and assigns. Your rights and obligations under the Award may only be assigned with the prior written consent of the Company.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of the Award.

(c) You acknowledge and agree that you have reviewed the documents provided to you in relation to the Award in their entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting the Award, and fully understand all provisions of such documents.

(d) This Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

17. Governing Plan Document. The Award is subject to all the provisions of the Plan, the provisions of which are hereby made a part of the Award, and is further subject to all interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan. Except as expressly provided herein, in the event of any conflict between the provisions of the Award and those of the Plan, the provisions of the Plan will control.

18. Severability. If all or any part of this Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Agreement (or part of such a Section) so declared to be unlawful or invalid will, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

19. Effect on Other Employee Benefit Plans. The value of the Award subject to this Agreement will not be included as compensation, earnings, salaries, or other similar terms used when calculating the Employee's benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

20. Amendment. This Agreement may not be modified, amended or terminated except by an instrument in writing, signed by you and by a duly authorized representative of the Company. Notwithstanding the foregoing, this Agreement may be amended solely by the Board by a writing which specifically states that it is amending this Agreement, so long as a copy of such amendment is delivered to you, and provided that, except as otherwise expressly provided in the Plan, no such amendment adversely affecting your rights hereunder may be made without your written consent. Without limiting the foregoing, the Board reserves the right to change, by written notice to you, the provisions of this Agreement in any way it may deem necessary or advisable to carry out the purpose of the grant as a result of any change in applicable laws or regulations or any future law, regulation, ruling, or judicial decision, provided that any such change will be applicable only to rights relating to that portion of the Award which is then subject to restrictions as provided herein.

21. Compliance with Section 409A of the Code. This Award is intended to comply with the "short-term deferral" rule set forth in Treasury Regulation Section 1.409A-1(b)(4). Notwithstanding the foregoing, if it is determined that the Award fails to satisfy the requirements of the short-term deferral rule and is otherwise deferred compensation subject to Section 409A, and if you are a "Specified Employee" (within the meaning set forth Section 409A(a)(2)(B)(i) of the Code) as of the date of your separation from service (within the meaning of Treasury Regulation Section 1.409A-1(h)), then the issuance of any shares that would otherwise be made upon the date of the separation from service or within the first six months thereafter will not be made on the originally scheduled date(s) and will instead be issued in a lump sum on the date that is six months and one day after the date of the separation from service, with the balance of the shares issued thereafter in accordance with the original vesting and issuance schedule set forth above, but if and only if such delay in the issuance of the shares is necessary to avoid the imposition of taxation on you in respect of the shares under Section 409A of the Code. Each installment of shares that vests is intended to constitute a "separate payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2).

* * *

This Agreement will be deemed to be accepted and agreed to by you upon the acceptance by you of the Restricted Stock Unit Grant Notice to which it is attached.

Attachment II

2014 Equity Incentive Plan

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Exhibit 10.2

ATARA BIOTHERAPEUTICS, INC.
RESTRICTED STOCK UNIT GRANT NOTICE
(2018 Inducement Plan)

Atara Biotherapeutics, Inc. (the "***Company***"), pursuant to its 2018 Inducement Plan (the "***Plan***"), hereby awards to Participant a Restricted Stock Unit Award for the number of shares of the Company's Common Stock set forth below (the "***Award***"). The Award is subject to all of the terms and conditions as set forth herein and in the Plan and the Restricted Stock Unit Award Agreement, both of which are attached hereto and incorporated herein in their entirety. Capitalized terms not otherwise defined herein will have the meanings set forth in the Plan or the Restricted Stock Unit Award Agreement. In the event of any conflict between the terms in the Award and the Plan, the terms of the Plan will control.

Participant:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Units/Shares Subject to Award:	_____

Vesting Schedule: [ ]

Issuance Schedule: Notwithstanding Section 6(a) of the attached Restricted Stock Unit Award Agreement, to the extent the Award vests as provided for above, the Company will deliver one share of Common Stock for each vested Restricted Stock Unit not previously settled at the Settlement Time.

"***Settlement Time***" means promptly following the applicable vesting date, and, in any event, not later than March 15 of the calendar year following the calendar year in which such vesting occurs.

Tax Withholding: ***IMPORTANT INFORMATION REGARDING ACCEPTANCE OF THE AWARD AND SELL TO COVER ELECTION***

By accepting this Award, to the greatest extent permitted under the Plan and applicable law, any withholding obligations for applicable Tax-Related Items (as defined in Section 10 of the Restricted Stock Unit Award Agreement) will be satisfied through the sale of a number of the shares of Common Stock subject to the Award as determined in accordance with Section 10 of the Restricted Stock Unit Award Agreement and the remittance of the cash proceeds of such sale to the Company (a "***Sell to Cover***"). Under the Restricted Stock Unit Award Agreement, the Company is authorized and directed by Participant to make payment from the cash proceeds of this sale directly to the appropriate taxing authorities in an amount equal to the withholding obligation for Tax-Related Items.

Participant may, during an open trading window under the Company's insider trading policy and when Participant is not otherwise in possession of material nonpublic information with respect to the Company, at least 90 days prior to the date upon which any portion of the Award vests, through a mandatory arrangement with Agent (as defined in Section 10 of the Restricted Stock Unit Award Agreement), irrevocably opt out of the Sell to Cover with respect to the shares to be issued on such vesting date and elect either of the following means to satisfy the Tax-Related Items: (i) the sale of all shares to be issued on such vesting date, with the proceeds from the number of the shares of Common Stock subject to the Award as determined in accordance with Section 10 of the Restricted Stock Unit Award Agreement to be remitted to the Company to satisfy the Tax-Related Items, and the remaining proceeds to be remitted to the Participant; or (ii) the Participant shall tender a cash payment in any amount specified by the Company to satisfy the Tax-Related Items (which may be in the form of a check, electronic wire transfer or other method permitted by the Company) to the Company.

Participant represents and warrants that (i) Participant has carefully reviewed this Restricted Stock Unit Grant Notice and Section 10 of the Restricted Stock Unit Award Agreement, (ii) on the date Participant accepts this Award or makes an election pursuant to the foregoing paragraph, he or she is not aware of any material, nonpublic information with respect to the Company or any securities of the Company, is not subject to any legal, regulatory or contractual restriction that would prevent Agent from conducting sales, does not have, and will not attempt to exercise, authority, influence or control over any sales of Common Stock effected by the Agent pursuant to the Restricted Stock Unit Award Agreement, and is entering into the Restricted Stock Unit Award Agreement and any such election in good faith and not as part of a plan or scheme to evade the prohibitions of Rule 10b5-1 (regarding trading of the Company's securities on the basis of material nonpublic information) under the Securities Exchange Act of 1934, as amended (the "***Exchange Act***"), and (iii) it is Participant's intent that this election comply with the requirements of Rule 10b5-1(c)(1) under the Exchange Act and be interpreted to comply with the requirements of Rule 10b5-1(c) under the Exchange Act.

Additional Terms/Acknowledgements: Participant acknowledges receipt of, and understands and agrees to, this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Award Agreement and the Plan. Participant further acknowledges that as of the Date of Grant, this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Award Agreement and the Plan set forth the entire understanding between Participant and the Company regarding this Award and supersede all prior oral and written agreements, promises and/or representations on that subject with the exception of (i) equity awards previously granted and delivered to Participant, (ii) any compensation recovery policy that is adopted by the Company or is otherwise required by applicable law and (iii) any written employment or severance arrangement that would provide for vesting acceleration of this award upon the terms and conditions set forth therein.

Participant may accept this Award electronically by means of reviewing and accepting the Grant Documents (as defined below) through the electronical brokerage account established for Company equity plans. By accepting the Award, Participant acknowledges having received and read the Restricted Stock Unit Grant Notice, the Restricted Stock Unit Award Agreement and the Plan (the "***Grant Documents***") and agrees to all of the terms and conditions set forth in these documents. Furthermore, by accepting the Award, Participant consents to receive such documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

Notwithstanding the above, if Participant has not actively accepted the Award within 90 days of the first vesting date set forth in this Restricted Stock Unit Grant Notice, Participant is deemed to have accepted the Award, subject to all of the terms and conditions of the Grant Documents.

Atara Biotherapeutics, Inc.

By: _____
Signature

Title: _____

Date: _____

Attachments: Restricted Stock Unit Award Agreement, 2018 Inducement Plan

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Attachment I

Atara Biotherapeutics, Inc.
Restricted Stock Unit Award Agreement
(2018 Inducement Plan)

Pursuant to the Restricted Stock Unit Grant Notice (the "***Grant Notice***") and this Restricted Stock Unit Award Agreement (the "***Agreement***") and in consideration of your services, Atara Biotherapeutics, Inc. (the "***Company***") has awarded you a Restricted Stock Unit Award (the "***Award***") under its 2018 Inducement Plan (the "***Plan***"). The Award is granted to you effective as of the Date of Grant set forth in the Grant Notice for this Award. Your Award is granted as a material inducement to you entering into employment with the Company (within the meaning of Nasdaq Listing Rule 5635(c)(4)). Defined terms not explicitly defined in this Agreement will have the same meanings given to them in the Plan. In the event of any conflict between the terms in this Agreement and the Plan, the terms of the Plan will control. The details of the Award, in addition to those set forth in the Grant Notice and the Plan, are as follows.

1. Grant of the Award. The Award represents the right to be issued on a future date the number of shares of the Company's Common Stock as indicated in the Grant Notice upon the satisfaction of the terms set forth in this Agreement. Except as otherwise provided herein, you will not be required to make any payment to the Company with respect to your receipt of the Award, the vesting of the shares or the delivery of the underlying Common Stock.

2. Vesting. Subject to the limitations contained herein, the Award will vest, if at all, in accordance with the vesting schedule provided in the Grant Notice, provided that vesting will cease upon the termination of your Continuous Service. Upon such termination of your Continuous Service, the shares credited to the Account that were not vested on the date of such termination will be forfeited at no cost to the Company and you will have no further right, title or interest in or to such underlying shares of Common Stock.

3. Number of Shares.

(a) The number of units/shares subject to the Award may be adjusted from time to time for Capitalization Adjustments, as provided in the Plan.

(b) Any shares, cash or other property that becomes subject to the Award pursuant to this Section 3 and Section 7, if any, will be subject, in a manner determined by the Board, to the same forfeiture restrictions, restrictions on transferability, and time and manner of delivery as applicable to the other shares covered by the Award.

(c) Notwithstanding the provisions of this Section 3, no fractional shares or rights for fractional shares of Common Stock will be created pursuant to this Section 3. The Board will, in its discretion, determine an equivalent benefit for any fractional shares or fractional shares that might be created by the adjustments referred to in this Section 3.

4. Securities Law and Other Compliance. You may not be issued any shares under the Award unless either (a) the shares are registered under the Securities Act; or (b) the Company has determined that such issuance would be exempt from the registration requirements of the Securities Act. The Award also must comply with other applicable laws and regulations governing the Award, and you will not receive such shares if the Company determines that such receipt would not be in material compliance with such laws and regulations.

5. Transfer Restrictions.

(a) General. Prior to the time that shares of Common Stock have been delivered to you, you may not transfer, pledge, sell or otherwise dispose of this Award or the shares issuable in respect of the Award, except as expressly provided in this Section 5. For example, you may not use shares that may be issued in respect of the Award as security for a loan. The restrictions on transfer set forth herein will lapse upon delivery to you of shares in respect of the vested portion of the Award.

(b) Death. The Award is transferable by will and by the laws of descent and distribution. In addition, upon receiving written permission from the Board or its duly authorized designee, you may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company and any broker designated by the Company to effect transactions under the Plan, designate a third party who, in the event of your death, will thereafter be entitled to receive any distribution of Common Stock or other consideration to which you were entitled at the time of your death pursuant to this Agreement. In the absence of such a designation, your executor or administrator of your estate will be entitled to receive, on behalf of your estate, such Common Stock or other consideration.

(c) Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer the Award to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the Award is held in the trust, provided that you and the trustee enter into transfer and other agreements required by the Company.

(d) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized designee, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer the Award or your right to receive the distribution of Common Stock or other consideration thereunder, pursuant to a domestic relations order that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this Award with the Company prior to finalizing the domestic relations order to help ensure the required information is contained within the domestic relations order.

6. Date of Issuance.

(a) The Company will deliver to you a number of shares of the Company's Common Stock equal to the number of vested shares subject to the Award, including any additional shares received pursuant to Section 3 above that relate to those vested shares on the applicable vesting date(s). However, if a scheduled delivery date falls on a date that is not a business day, such delivery date will instead fall on the next following business day.

(b) Notwithstanding the foregoing, in the event that (i) you are subject to the Company's policy permitting certain individuals to sell shares only during certain "window" periods, in effect from time to time or you are otherwise prohibited from selling shares of the Company's Common Stock in the public market and any shares covered by the Award are scheduled to be delivered on a day (the "***Original Distribution Date***") that does not occur during an open "window period" applicable to you, as determined by the Company in accordance with such policy, or does not occur on a date when you are otherwise permitted to sell shares of the Company's Common Stock on the open market, and (ii) the Company satisfies its obligations for Tax-Related Items (as defined in Section 10) by withholding shares from your distribution, then such shares will not be delivered on such Original Distribution Date and will instead be delivered on the first business day of the next occurring open "window period" applicable to you pursuant to such policy (regardless of whether you are still providing Continuous Service at such time) or the next business day when you are not prohibited from selling shares of the Company's Common Stock in

the open market, but in no event later than the fifteenth (15th) day of the third calendar month of the calendar year following the calendar year in which the shares of Common Stock originally became vested. The form of such delivery (*e.g.*, a stock certificate or electronic entry evidencing such shares) will be determined by the Company. In all cases, the delivery of shares under this Award is intended to comply with Treasury Regulation Section 1.409A-1(b)(4) and will be construed and administered in such a manner.

7. Dividends. You will receive no benefit or adjustment to your Restricted Stock Units with respect to any cash dividend, stock dividend or other distribution except as provided in the Plan with respect to a Capitalization Adjustment.

8. Restrictive Legends. The shares issued under the Award will be endorsed with appropriate legends as determined by the Company.

9. Award not an Employment or Service Contract.

(a) Your Continuous Service with the Company or an Affiliate is not for any specified term and may be terminated by you or by the Company or an Affiliate at any time, for any reason, with or without cause and with or without notice. Nothing in this Agreement (including, but not limited to, the vesting of the Award pursuant to Section 2 or the issuance of the shares subject to the Award), the Plan or any covenant of good faith and fair dealing that may be found implicit in this Agreement or the Plan will: (i) confer upon you any right to continue in the employ of, or affiliation with, the Company or an Affiliate; (ii) constitute any promise or commitment by the Company or an Affiliate regarding the fact or nature of future positions, future work assignments, future compensation or any other term or condition of employment or affiliation; (iii) confer any right or benefit under this Agreement or the Plan unless such right or benefit has specifically accrued under the terms of this Agreement or Plan; or (iv) deprive the Company or an Affiliate of the right to terminate you at will and without regard to any future vesting opportunity that you may have.

(b) By accepting this Award, you acknowledge and agree that the right to continue vesting in the Award pursuant to Section 2 and the schedule set forth in the Grant Notice is earned only by continuing as an employee, director or consultant at the will of the Company or an Affiliate (not through the act of being hired, being granted this Award or any other award or benefit) and that the Company has the right to reorganize, sell, spin-out or otherwise restructure one or more of its businesses or Affiliates at any time or from time to time, as it deems appropriate (a "***reorganization***"). You further acknowledge and agree that such a reorganization could result in the termination of your Continuous Service, or the termination of Affiliate status of your employer and the loss of benefits available to you under this Agreement, including but not limited to, the termination of the right to continue vesting in the Award. You further acknowledge and agree that this Agreement, the Plan, the transactions contemplated hereunder and the vesting schedule set forth in the Grant Notice or any covenant of good faith and fair dealing that may be found implicit in any of them do not constitute an express or implied promise of continued engagement as an employee or consultant with the Company or an Affiliate for the term of this Agreement, for any period, or at all, and will not interfere in any way with your right or the right of the Company or an Affiliate to terminate your Continuous Service at any time, with or without cause and with or without notice.

10. Responsibility for Taxes.

(a) You acknowledge that, regardless of any action the Company or, if different, your employer (the "***Employer***") takes with respect to any or all income tax, social insurance, payroll tax, fringe benefit tax, payment on account or other tax-related withholding ("***Tax-Related Items***"), the ultimate liability for all Tax-Related Items is and remains your responsibility and may exceed the amount actually withheld by the Company or the Employer. You further acknowledge that the Company and the Employer

(i) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of your Restricted Stock Units, including the grant of the Restricted Stock Units, the vesting and settlement of the Restricted Stock Units, the delivery or sale of any shares of Common Stock and the issuance of any dividends, and (ii) do not commit to and are under no obligation to structure the terms of the grant or any aspect of your Award to reduce or eliminate your liability for Tax-Related Items or achiev e any particular tax result. You acknowledge and agree that you will not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates for Tax-Related Items arising from your Award or your other compensation. Further, if you are subject to Tax-Related Items in more than one jurisdiction, you ackno wledge that the Company and/or the Employer may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

(b) Prior to the relevant taxable or tax withholding event, as applicable, you agree to make adequate arrangements satisfactory to the Company and/or the Employer to satisfy all Tax-Related Items. Specifically, pursuant to Section 10(d) below, you have agreed to a "same day sale" commitment with a broker-dealer that is a member of the Financial Industry Regulatory Authority (a "***FINRA Dealer***") whereby you have (except as provided in Section 10(e) below) agreed to sell a portion of the shares of Common Stock to be delivered in connection with your Restricted Stock Units to satisfy any withholding obligations for Tax-Related Items and whereby the FINRA Dealer has committed to forward the proceeds necessary to satisfy any withholding obligations for Tax-Related Items directly to the Company and/or the Employer. If, for any reason, such "same day sale" commitment pursuant to Section 10 (d) does not result in sufficient proceeds to satisfy any withholding obligations for Tax-Related Items, you authorize the Company and/or the Employer, or their respective agents, at their discretion, to satisfy their withholding obligations with regard to all Tax-Related Items by one or a combination of the following: (i) withholding from your wages or other cash compensation paid to you by the Company or the Employer; (ii) withholding a number of shares of Common Stock having a fair market value determined by the Company as of the date of the relevant taxable or tax withholding event, as applicable, that are otherwise deliverable to you upon settlement; *provided, however,* that to the extent necessary to qualify for an exemption from application of Section 16(b) of the Exchange Act, if applicable, such share withholding procedure be subject to the express prior approval of the Compensation Committee; or (iv) causing you to tender a cash payment (which may be in the form of a check, electronic wire transfer or other method permitted by the Company).

(c) Depending on the withholding method, the Company or the Employer may withhold or account for Tax-Related Items by considering applicable minimum statutory withholding amounts or other applicable withholding rates, including maximum applicable rates, in which case you may receive a refund of any over-withheld amount in cash and will have no entitlement to the Common Stock equivalent. If the obligation for Tax-Related Items is satisfied by withholding in shares of Common Stock, for tax purposes, you are deemed to have been issued the full number of shares of Common Stock subject to the vested Restricted Stock Units notwithstanding that a number of the shares of Common Stock are held back solely for the purpose of paying the Tax-Related Items.

(d) You hereby acknowledge and agree to the following:

(i) I hereby appoint E*Trade (or any successor agent determined by the Company) as my agent (the "***Agent***"), and authorize the Agent to:

(1) Sell on the open market at the then-prevailing market price(s), on my behalf, as soon as practicable on or after each date on which shares of Common Stock underlying my Restricted Stock Units vest and are issued, the number (rounded up to the next whole number) of the shares of Common Stock to be delivered to me in connection with the vesting of those shares sufficient to generate proceeds to cover (1) the satisfaction of the Tax-Related Items arising from the vesting of the Award and the related issuance of shares of Common Stock to me, and (2) all applicable fees and commissions due to, or required to be collected by, the Agent with respect thereto;

(2) Remit directly to the Company and/or any Affiliate the proceeds necessary to satisfy the Tax-Related Items;

(3) Retain the amount required to cover all applicable fees and commissions due to, or required to be collected by, the Agent, relating directly to the sale of the shares of Common stock referred to in clause (1) above; and

(4) Remit any remaining funds to me.

(ii) I hereby authorize the Company and the Agent to cooperate and communicate with one another to determine the number of shares of Common Stock underlying my Restricted Stock Units that must be sold pursuant to this Section 10(d).

(iii) I acknowledge that the Agent is under no obligation to arrange for the sale of Common Stock at any particular price under this Section 10(d) and that the Agent may effect sales as provided in this Section 10(d) in one or more sales and that the average price for executions resulting from bunched orders may be assigned to my account. I further acknowledge that I will be responsible for all brokerage fees and other costs of sale associated with this Section 10(d), and I agree to indemnify and hold the Company harmless from any losses, costs, damages, or expenses relating to any such sales. In addition, I acknowledge that it may not be possible to sell shares of Common Stock as provided by in this Section 10(d) due to (i) a legal or contractual restriction applicable to me or the Agent, (ii) a market disruption, (iii) rules governing order execution priority on the national exchange where the Common Stock may be traded or (iv) applicable law restricting such sale. In the event of the Agent's inability to sell shares of Common Stock, I will continue to be responsible for the timely payment to the Company of all Tax-Related Items that are required by applicable laws and regulations to be withheld.

(iv) I acknowledge that regardless of any other term or condition of this Section 10(d), the Agent will not be liable to me for (a) special, indirect, punitive, exemplary, or consequential damages, or incidental losses or damages of any kind, or (b) any failure to perform or for any delay in performance that results from a cause or circumstance that is beyond its reasonable control.

(v) I hereby agree to execute and deliver to the Agent any other agreements or documents as the Agent reasonably deems necessary or appropriate to carry out the purposes and intent of this Section 10(d). The Agent is a third-party beneficiary of this Section 10(d).

(vi) This Section 10(d) shall terminate not later than the date on which all Tax-Related Items arising in connection with the Award have been satisfied.

(vii) I hereby authorize the Company to appoint a successor Agent should the above-named entity in (i) above (or its successor) resign as Agent or be replaced by the Company.

(e) You may, by notice delivered in accordance with the Restricted Stock Unit Grant Notice, at least 90 days prior to a vesting date, opt out of the "same day sale" commitment under Section 10(d) with respect to such vesting date, provided alternate arrangements acceptable to the Company to satisfy any withholding obligation for Tax-Related Items have been made, as described in Section 10(a) and the Restricted Stock Unit Grant Notice.

(f) You agree to pay to the Company or the Employer any amount of Tax-Related Items that the Company or the Employer may be required to withhold or account for as a result of your participation in the Plan that cannot be satisfied by the means previously described. You acknowledge and agree that the Company may refuse to issue or deliver the shares of Common Stock, or the proceeds of the sale of shares of Common Stock, if you fail to comply with your obligations in connection with the Tax-Related Items.

11. No Obligation to Minimize Taxes. You acknowledge that the Company is not making representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of the Award, including, but not limited to, the grant, vesting or settlement of the Award, the subsequent sale of shares of Common Stock acquired pursuant to such settlement and the receipt of any dividends and/or any dividend equivalent payments. Further, you acknowledge that the Company does not have any duty or obligation to minimize your liability for Tax-Related Items arising from the Award and will not be liable to you for any Tax-Related Items arising in connection with the Award.

12. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding your participation in the Plan, or your acquisition or sale of the underlying shares of Common Stock. You are hereby advised to consult with your own personal tax, financial and/or legal advisors regarding the Tax-Related Items arising in connection with the Award and by accepting the Award, you have agreed that you have done so or knowingly and voluntarily declined to do so.

13. Unsecured Obligation. The Award is unfunded, and as a holder of a vested Award, you will be considered an unsecured creditor of the Company with respect to the Company's obligation, if any, to issue shares pursuant to this Agreement. You will not have voting or any other rights as a stockholder of the Company with respect to the shares to be issued pursuant to this Agreement until such shares are issued to you pursuant to Section 6 of this Agreement. Upon such issuance, you will obtain full voting and other rights as a stockholder of the Company. Nothing contained in this Agreement, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

14. Other Documents. You hereby acknowledge receipt or the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

15. Notices. Any notices provided for in the Grant Notice, this Agreement or the Plan will be given in writing and will be deemed effectively given upon receipt or, in the case of notices delivered by the Company to you, five (5) days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company. Notwithstanding the foregoing, the Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan and this Award by electronic means or to request your consent to participate in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and, if requested, to agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

16. Miscellaneous.

(a) The rights and obligations of the Company under the Award will be transferable to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by the Company's successors and assigns. Your rights and obligations under the Award may only be assigned with the prior written consent of the Company.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of the Award.

(c) You acknowledge and agree that you have reviewed the documents provided to you in relation to the Award in their entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting the Award, and fully understand all provisions of such documents.

(d) This Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

17. Governing Plan Document. The Award is subject to all the provisions of the Plan, the provisions of which are hereby made a part of the Award, and is further subject to all interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan. Except as expressly provided herein, in the event of any conflict between the provisions of the Award and those of the Plan, the provisions of the Plan will control.

18. Severability. If all or any part of this Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Agreement (or part of such a Section) so declared to be unlawful or invalid will, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

19. Effect on Other Employee Benefit Plans. The value of the Award subject to this Agreement will not be included as compensation, earnings, salaries, or other similar terms used when calculating the Employee's benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

20. Amendment. This Agreement may not be modified, amended or terminated except by an instrument in writing, signed by you and by a duly authorized representative of the Company. Notwithstanding the foregoing, this Agreement may be amended solely by the Board by a writing which specifically states that it is amending this Agreement, so long as a copy of such amendment is delivered to you, and provided that, except as otherwise expressly provided in the Plan, no such amendment adversely affecting your rights hereunder may be made without your written consent. Without limiting the foregoing, the Board reserves the right to change, by written notice to you, the provisions of this Agreement in any way it may deem necessary or advisable to carry out the purpose of the grant as a result of any change in applicable laws or regulations or any future law, regulation, ruling, or judicial decision, provided that any such change will be applicable only to rights relating to that portion of the Award which is then subject to restrictions as provided herein.

21. Compliance with Section 409A of the Code. This Award is intended to comply with the "short-term deferral" rule set forth in Treasury Regulation Section 1.409A-1(b)(4). Notwithstanding the foregoing, if it is determined that the Award fails to satisfy the requirements of the short-term deferral rule and is otherwise deferred compensation subject to Section 409A, and if you are a "Specified Employee" (within the meaning set forth Section 409A(a)(2)(B)(i) of the Code) as of the date of your separation from service (within the meaning of Treasury Regulation Section 1.409A-1(h)), then the issuance of any shares that would otherwise be made upon the date of the separation from service or within the first six months thereafter will not be made on the originally scheduled date(s) and will instead be issued in a lump sum on the date that is six months and one day after the date of the separation from service, with the balance of the shares issued thereafter in accordance with the original vesting and issuance schedule set forth above, but if and only if such delay in the issuance of the shares is necessary to avoid the imposition of taxation on you in respect of the shares under Section 409A of the Code. Each installment of shares that vests is intended to constitute a "separate payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2).

* * *

This Agreement will be deemed to be accepted and agreed to by you upon the acceptance by you of the Restricted Stock Unit Grant Notice to which it is attached.

Attachment II

2018 Inducement Plan

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[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Exhibit 10.3

SECOND AMENDED AND RESTATED RESEARCH AND DEVELOPMENT COLLABORATION AGREEMENT

BETWEEN

THE COUNCIL OF THE QUEENSLAND INSTITUTE OF MEDICAL RESEARCH

AND

ATARA BIOTHERAPEUTICS, INC.

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SECOND AMENDED AND RESTATED RESEARCH AND DEVELOPMENT COLLABORATION AGREEMENT

This Second Amended and Restated Research and Development Collaboration Agreement (" **Second Restated Agreement**"), entered into on 28th August 2019 ("**Execution Date** "), and effective as of the Execution Date, is made by and between **Atara Biotherapeutics, Inc.**, having its principal offices at 611 Gateway Blvd #900, South San Francisco, CA 94080, (" **Atara**"), and the **Council of the Queensland Institute of Medical Research**, a not-for-profit Institute organized and existing under the laws of the State of Queensland having its principal offices at 300 Herston Rd, Herston QLD 4006, Australia ("**Institute**"). Each of Atara and Institute are referred to in this Agreement as a " **Party**", and collectively as the "**Parties**"

WHEREAS, Institute has conducted certain research and development, and possesses certain expertise relating to the research and development of, among other things, allogeneic and autologous cytotoxic T-lymphocytes ("**CTL**"), including in relation to the development of novel therapies targeting tumor and other cells infected with certain viruses, for use in oncology and autoimmune indications.

WHEREAS, Atara is a biotechnology company developing novel therapies for commercialization for the treatment of human diseases and conditions.

WHEREAS , the Parties desire to collaborate in relation to research and development activities in accordance with the terms and conditions set forth herein.

WHEREAS, the Institute is uniquely qualified to conduct the proposed research and the research is within Institute's mission and it is in the mutual interest of Atara and Institute that Institute continues to progress certain research and development activities in accordance with the terms and conditions set forth herein.

WHEREAS, Atara and Institute are parties to that certain Research and Development Collaboration Agreement (the " **Original Research Agreement**"), entered into on October 20, 2015 (the "**Original Effective Date** "), which was amended and restated as of September 23, 2016 (the " **First Restatement Date**") pursuant to that certain Amended and Restated Research and Development Collaboration Agreement and was subsequently amended on December 15, 2017, April 24, 2018 and May 9, 2018 (as so amended, the "**First Restated Agreement** ") effective as of the Original Effective Date, and now the Parties desire to amend and restate the First Restated Agreement in its entirety to, among other things, terminate and wind down Atara's funding and participation in the CMV [*] and [*]; and

WHEREAS, the Parties desire that intellectual property rights and technology developed as a result of activities conducted under this Agreement be licensed to Atara for the further development and commercialization of CTL products based on novel allogeneic and autologous CTLs for use in the diagnosis, treatment, prophylaxis and palliation of diseases and conditions associated with EBV, and to that end, the Parties entered into the that certain exclusive License Agreement (the "**Original License Agreement** ") simultaneous with the Original Research Agreement on the Original Effective Date, which Original License Agreement was amended and restated as of the First Restatement Date pursuant to that certain Amended and Restated Exclusive License Agreement ("**First Restated License Agreement** "), and the First Restated License Agreement is being amended and restated in its entirety pursuant to that certain Second Amended and Restated Exclusive License Agreement simultaneously with entering into this Second Restated Agreement (the "**Second Restated License Agreement**").

NOW, THEREFORE, Institute and Atara hereby agree to the following terms and conditions in this Agreement:

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

1. **DEFINITIONS**

The following capitalized terms shall have the meanings set forth in this Article 1. Capitalized terms not defined in this Article 1 or elsewhere in this Agreement shall have the meaning given to such terms in the License Agreement.

1.1 "**Affiliate**" shall have the meaning given in the License Agreement.

1.2 "**Agreement** " means the First Restated Agreement as in effect from the Original Effective Date until the Execution Date, together with this Second Restated Agreement which pursuant to Article 19 replaces the First Restated Agreement as of the Execution Date.

1.3 "**Alliance Manager**" shall have the meaning given in Section 3.2(a).

1.4 "**Allogeneic CTL**" shall have the meaning given in the License Agreement.

1.5 "**Allogeneic CTL Products**" shall have the meaning given in the License Agreement.

1.6 "**Allogeneic Programs**" means (a) the research and development activities being performed by Institute and Atara pursuant to this Agreement directed to the identification and development of Allogeneic CTL Products, including the Allogeneic EBV CTL Program, and (b) the research and development activities conducted under each New Research Program pursuant to Section 2.3 that is directed to the identification and development of New CTL Products comprising Allogeneic CTLs for use in any Indication.

1.7 "**Atara Forecast**" shall have the meaning given in Section 2.7(c).

1.8 "**Atara Forecast Quantity**" shall have the meaning given in Section 2.7(c).

1.9 "**Atara Indemnitees"** shall have the meaning given in Section 12.2.

1.10 "**Atara Inventions**" shall have the meaning given in Section 9.1.

1.11 "**Autologous CTL**" shall have the meaning given in the License Agreement.

1.12 "**Autologous CTL Products**" shall have the meaning given in the License Agreement.

1.13 "**Autologous Programs**" means (a) the research and development activities being performed by Institute and Atara pursuant to this Agreement directed to the identification and development of Autologous CTL Products, including the Autologous EBV CTL Program, and (b) the research and development activities conducted under each New Research Program pursuant to Section 2.3 that is directed to the identification and development of New CTL Products comprising Autologous CTLs for use in any Indication.

1.14 "**Background IP**" shall have the meaning given in the License Agreement.

1.15 "**BKV/JCV**" shall have the meaning given in Section 2.3(d).

1.16 "**BKV/JCV CTL Budget**" shall have the meaning given in Section 2.6(d).

1.17 "**BKV/JCV CTL Development Plan**" shall have the meaning given in Section 2.6(c).

1.18 "**BKV/JCV CTL Program**" shall have the meaning given in Section 2.6(c).

1.19 "**BKV/JCV Program**" shall have the meaning given in Section 2.3(d).

1.20 "**Claims**" shall have the meaning given in Section 12.1.

1.21 "**CMV**" means cytomegalovirus (including all naturally occurring variants thereof).

1.22 " **CMV CTL Program** " shall have the meaning given in Section 4.3.

1.23 "**CMV [*] Development Plan**" shall have the meaning given in Section 2.6(e).

1.24 "**Calendar Quarter**" means each successive period of three (3) consecutive calendar months ending on the last day of March, June, September, or December, respectively; provided that, the final Calendar Quarter shall end on the last day of the Term.

1.25 "**Commercially Reasonable Efforts**" means, with respect to the efforts to be expended by a Party or its Affiliate with respect to any objective, activity or decision to be undertaken under this Agreement, those efforts that a company or institution developing technology within the bio-pharmaceutical industry of comparable size and resources would reasonably use to accomplish such objective, activity or decision under similar circumstances, and specifically means the carrying out of development activities using efforts that a company or institution developing technology within the bio-pharmaceutical industry of comparable size and resources would reasonably devote to a product at a similar stage in its development or product life, taking into consideration, among other factors, efficacy, safety, approved labeling, the patent and other proprietary position of the product, and the likelihood of regulatory approval given the regulatory structure involved. Commercially Reasonable Efforts shall be determined on a Major Market-by-Major Market and indication-by-indication basis for the Products being developed under the Research Collaboration, and it is anticipated that the level of effort will change over time, reflecting changes in the status of each such Product, including with respect to any Product that is the subject of Autologous Programs.

1.26 "**Confidential Information**" of a Party, means (a) information relating to the business, operations or products of a Party or any of its Affiliates, including any know-how, that such Party discloses, transfers or makes available to the other Party under this Agreement or the License Agreement, or which otherwise becomes known to the other Party by virtue of this Agreement or the License Agreement, in each case whether in written, oral, graphical, machine readable or other form, whether or not marked as confidential or proprietary, and (b) the terms of this Agreement and the License Agreement;

1.27 "**CTL**" shall have the meaning given in the Recitals hereto.

1.28 "**CTL Product**" shall have the meaning given in the License Agreement.

1.29 "**Data**" shall have the meaning given in Section 8.1.

1.30 "**Designated Executive Officers**" means the Director and Chief Executive Officer of Institute, and the Chief Executive Officer of Atara.

1.31 "**Development Plan** " means the plan, on a Program-by-Program basis for the research and development activities to be conducted pursuant to this Agreement for the time periods reflected in such plan, as prepared and updated in accordance with Section 2.2, including the budget for such activities.

1.32 "**Dispute**" shall have the meaning given in Section 14.1.

1.33 "**EBNA1**" means Epstein Barr nuclear antigen 1.

1.34 "**EBV** " mean Epstein Barr Virus (including all naturally occurring variants thereof).

1.35 "**[*] Development Plan**" shall have the meaning given in Section 2.6(e).

1.36 "**Existing Confidentiality Agreement**" shall have the meaning given in Section 6.2.

1.37 "**Final Report**" shall have the meaning given in Section 8.1.

1.38 "**First Restated Agreement**" shall have the meaning given in the recitals hereto.

1.39 "**First Restated License Agreement**" shall have the meaning given in the recitals hereto.

1.40 "**First Restatement Date**" shall have the meaning given in the recitals hereto.

1.41 "**FTE**" means the equivalent of the work of one (1) full-time employee of a Party or its Affiliates for one (1) year (consisting of 1540-1920 hours per year) in directly conducting activities under this Agreement. Any Party's employee who devotes fewer than 1540 hours per year on the applicable activities shall be treated as an FTE on a pro-rata basis, calculated by dividing the actual number of hours worked by such employee on such activities by 1920. Any employee who devotes more than 1920 hours per year on the applicable activities shall be treated as one (1) FTE. For the avoidance of doubt, FTE shall not include the work of general corporate or administrative personnel, except for the portion of such personnel's work time actually spent on conducting scientific or technical activities related to the Research Collaboration.

1.42 "**FTE Rate**" shall mean the rates mutually agreed by the Parties for the engagement of specified FTEs, as set forth on Schedule 1.15.

1.43 "**HPV**" shall have the meaning given in Section 2.6(a).

1.44 "**HPV CTL Budget**" shall have the meaning given in Section 2.6(b).

1.45 "**HPV CTL Development Plan**" shall have the meaning given in Section 2.6(a).

1.46 "**HPV CTL Program**" shall have the meaning given in Section 2.6(a).

1.47 "**Indication**" means any disease or condition, or sign or symptom of a disease or condition.

1.48 "**Initial EBV Indications**" shall have the meaning given in Section 2.1(a).

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

1.49 "**Institute Background IP Improvements**" shall have the meaning given in Section 9.4.

1.50 "**Institute Indemnitees**" shall have the meaning given in Section 12.1.

1.51 "**Institute Inventions**" shall have the meaning given in Section 9.1.

1.52 "**[*] Programs** " means, collectively, the CMV [*] Program and the [*] Program (each as defined in the License Agreement).

1.53 "**Interim Reports**" shall have the meaning given in Section 8.1.

1.54 "**Inventions**" shall have the meaning given in Section 9.1.

1.55 "**Joint Inventions**" shall have the meaning given in Section 9.2.

1.56 "**Joint Steering Committee**" or "**JSC**" shall have the meaning given in Section 3.1.

1.57 "**License Agreement** " means the First Restated License Agreement as in effect from the Original Effective Date until the Execution Date, together with the Second Restated License Agreement effective as of the Execution Date.

1.58 "**Licensed Products**" shall have the meaning given in the License Agreement.

1.59 "**LMP1**" means latent membrane protein 1.

1.60 "**LMP2**" means latent membrane protein 2.

1.61 "**Losses**" shall have the meaning given in Section 12.1.

1.62 "**Major Market**" shall have the meaning given in the License Agreement.

1.63 "**MS**" shall have the meaning given in Section 2.1(a).

1.64 "**MSK Agreement**" shall have the meaning given in the License Agreement.

1.65 "**New CTL Products**" shall have the meaning given in Section 2.3(a).

1.66 "**New Research Information Package**" shall have the meaning given in Section 2.3(b).

1.67 "**New Research Programs**" shall have the meaning given in Section 2.3(a).

1.68 "**New Research Proposal**" shall have the meaning given in Section 2.3(b).

1.69 "**NHL**" shall have the meaning given in Section 2.1(a).

1.70 [*] shall have the meaning given in Section 2.1(a).

1.71 "**Option**" shall have the meaning given in the License Agreement.

1.72 "**Original Research Agreement**" shall have the meaning given in the recitals hereto.

1.73 "**Original License Agreement**" shall have the meaning given in the recitals hereto.

1.74 "**Other Work**" shall have the meaning given in Section 5.2.

1.75 "**Principal Investigator**" means Professor Rajiv Khanna.

1.76 "**Program**" means, on a Target-by-Target basis, any and all preclinical development, clinical development, manufacturing and commercialization activities with respect to any and all products directed to such Target. Programs include (a) the Allogeneic Programs, (b) the Autologous Programs and (c) any New Research Programs.

1.77 "**Program [*]s**" shall have the meaning given in Section 2.3(a).

1.78 "**[*] Payment**" shall have the meaning given in Section 2.7(a).

1.79 "**[*] Capacity**" shall have the meaning given in Section 2.7(a).

1.80 "**[*] Period**" shall have the meaning given in Section 2.7(b).

1.81 "**Regulatory Approval**" means with respect to a country or region, any and all approvals, licenses, registrations or authorizations of any Regulatory Authority necessary to commercially distribute, sell or market a product developed or commercialized under this Agreement or the License Agreement in such country or region, including, where applicable: (a) pre- and post-approval marketing authorizations; (b) labeling approval; and (c) technical, medical and scientific licenses, in each case necessary for commercial distribution, sale or marketing of such product in such country or region.

1.82 "**Regulatory Authority**" means any Government Authority or other entity, in each case regulating or otherwise exercising authority with respect to the development, manufacturing or commercialization of a given product under this Agreement or the License Agreement in a given country or region, including the U.S. Food and Drug Administration ("**FDA**"), or any successor thereto, and the European Medicines Agency ("**EMA**"), or any successor thereto.

1.83 "**Research Collaboration**" shall have the meaning given in Section 2.1.

1.84 "**Research Milestone**" shall have the meaning given in Section 4.4(a).

1.85 "**Research Milestone Payment**" shall have the meaning given in Section 4.4(a).

1.86 "**Rules of Arbitration**" shall have the meaning given in Section 14.2.

1.87 "**Specifically Directed**" shall have the meaning given in the License Agreement.

1.88 "**Target**" means an antigen expressed on or in a cell, including [*]. For clarity, a Target may be [*] (collectively, a single "**Target**"). Unless otherwise specified, where the antigen is naturally occurring, a Target [*]. For clarity, (a) where a CTL Product is [*] antigen expressed on or in a cell in association with [*] EBV, [*], and (b) where a CTL Product is [*] associated with a [*] on or in a cell in association with the presence of, or infection of such cell by, EBV, or [*] with EBV, [*].

1.89 "**Second Restated License Agreement**" shall have the meaning given in the recitals hereto.

1.90 "**Term**" shall have the meaning given in Section 15.1.

1.91 "**Territory**" means worldwide.

1.92 "**Third Party**" means any Person (as defined in the License Agreement) other than Institute, Atara or any of their respective Affiliates.

1.93 "**[*]**" shall have the meaning given in the License Agreement.

1.94 "**[*] Milestone**" shall have the meaning given in Section 4.4(b).

1.95 "**[*] Period**" shall have the meaning given in the License Agreement.

1.96 "**[*] Milestone Payment**" shall have the meaning given in Section 4.4(b).

1.97 " **[*] Budget**" shall have the meaning given in Section 2.6(f).

1.98 "**[*] Development Plan**" shall have the meaning given in Section 2.6(e).

1.99 "**Wind Down Activities**" shall have the meaning given in Section 15.5(b).

2. SCOPE OF THE COLLABORATION

2.1 **Scope**. Pursuant to this Agreement, as further provided in this Article 2, during the Term:

(a) Atara and Institute shall collaborate to conduct the Allogeneic Programs as set forth in Section 2.2 and the Development Plan, with the intention of identifying and developing CTL Products Specifically Directed to (i) Targets expressed in association with EBV, including [*], and such other Targets as may be incorporated in the Development Plan, for use in the diagnosis, prophylaxis, treatment and palliation of (A) multiple sclerosis ("**MS**"), (B) [*] (collectively (A) through [*], the " **Initial EBV Indications**") and such other Indications as may be incorporated in the Development Plan, and (ii) such other Indications as the Parties may mutually agree in the Development Plan;

(b) Institute shall use Commercially Reasonable Efforts to conduct the Autologous Programs, as set forth in the Development Plan, with the intention of progressing the clinical development of Autologous CTL Products Specifically Directed to Targets expressed in association with EBV for the prophylaxis, treatment and palliation of [*] MS. The foregoing activities, as well as any New Research Programs conducted by the Parties pursuant to Section 2.3, and activities conducted pursuant to the License Agreement, together, shall be the " **Research Collaboration**".

2.2 **Conduct of the Research Collaboration** . The Research Collaboration shall be conducted at Institute under the supervision of the Principal Investigator and commenced promptly after the Original Effective Date. Institute shall use Commercially Reasonable Efforts to conduct the Autologous Programs, and the Parties shall use Commercially Reasonable Efforts to conduct the Allogeneic Programs, in accordance with all applicable laws, rules and regulations, the terms and conditions of this Agreement, the Development Plan attached as Schedule 2.2 and incorporated by reference herein, and in the case of the Allogeneic Programs under the supervision of the JSC. Institute will furnish the facilities, know-how, and

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

technical skills necessary for performance of the Research Collaboration. Anything in this Agreement to the contrary notwithstanding, Atara and Institute may at any time modify the scope of the Research Collaboration, including the Development Plan, by mutual written agreement in a document executed by duly authorized representatives of both Parties or otherwise expressly agreed to in writing by the Alliance Managers and representatives on the JSC of both Parties that states that it is effectuating such a modification.

2.3 **New Research**.

(a) During the term of this Agreement, if either Party wishes to pursue a program of activities directed to (i) the research and development of pharmaceutical or biologic products comprising Autologous CTLs or Allogeneic CTLs, or [*], in each case Specifically Directed to Targets that are not associated with EBV ("**New CTL Products**"), or (ii) the research and development of the [*] arising from the [*] Programs (the "**Program [*]**" as further defined in the License Agreement), (such research and development programs in (i) and (ii), each a "**New Research Program**"), such Party may propose to the JSC that such New Research Program is included within the scope of the Research Collaboration.

(b) If the Parties, through the JSC, agree that a New Research Program should be investigated with a view to inclusion within the Research Collaboration, Institute shall prepare and present a proposal (a "**New Research Proposal** ") to the JSC for discussion. Any New Research Proposal shall include, at a minimum: (i) the Target(s) for such New CTL Products or Program [*], as applicable, (ii) a description of the proposed research and development activities, including an estimated timeline for such development, (iii) a good faith estimated budget for such development activities, (iv) a description of any material know-how, data, results or information in the possession and control of Institute that is necessary for Atara (and the JSC) to determine whether or not to pursue the New Research Program, and (v) a listing of the patent rights (including any such patent rights owned or controlled by any Third Party) that (A) cover or claim such New CTL Products or Program [*], or (B) Institute reasonably believes may be necessary or useful for the conduct of the proposed development activities, including in each case the owner or licensor under any Third Party patent rights, and (vi) any other information that Atara or the JSC may request in order to make a decision as to whether or not to progress the New Research Program (the information and materials in (i) through (vi), the "**New Research Information Package**"). Any such New Research Proposal shall be presented to the JSC no less than thirty (30) days prior to the JSC meeting at which such New Research Proposal is to be considered.

(c) The JSC shall discuss any New Research Proposal at the next JSC meeting following the delivery by Institute of the New Research Information Package, and shall determine whether the Parties should include the New Research Program within the scope of the Research Collaboration. A Party may withhold its consent to inclusion of any New Research Program within the scope of the Research Collaboration at its sole discretion. If the Parties mutually agree to progress any New Research Program, the Parties shall consult to prepare a formal development plan and budget for such New Research Program for review and approval by the JSC (subject to Atara's final decision making right under Section 3.3(f)).

(d) If the Parties agree to conduct a New Research Program, then within sixty (60) days following the finalization of the development plan and budget for such New Research Program (or such other timing as may be agreed to in writing by the Parties), such development plan and budget shall be added to and incorporated within the Development Plan and Budget, the Parties shall amend the License Agreement to provide that any New CTL Products and/or Program [*] shall be included within the scope of Licensed Products, and subject to the licenses granted pursuant to the License Agreement, and to make any other necessary amendments to the License Agreement in order to effect such change to the

scope of Licensed Products, including, in the case of the New Research Program(s) including the Program [*], amendments to the economic terms applicable to Licensed Products arising from such New Research Program(s). With the exception of such amendments, all other terms and conditions of the License Agreement shall apply equally to any New CTL Product and the Program [*] as to any other Licensed Product, provided that (i) the Milestone Payments applicable to any such New CTL Product shall be those set forth in the column under the heading "Research Milestone Payments – Licensed Product Arising Directly From Activities under New Research Programs" in the table in Section 4.4(a) of this Agreement and under the heading "Milestone Payments – Licensed Product Arising Directly From Activities under Research Agreement" in Section 4.3(a) of the License Agreement, and (ii) the Milestone Payments applicable to any such Program [*] shall be those set forth in the column under the heading "[*]" in the table in Section 4.4(b) of this Agreement and under the heading "Milestone Payments – Licensed Product Arising Directly From Activities under Research Agreement" in Section 4.3(a) of the License Agreement. Except for (A) any funding that Atara agrees to provide for research and development activities to be conducted under any New Research Program pursuant to this Agreement, (B) amounts payable by Atara for any New Research Program including New CTL Products Specifically Directed to a Target that is associated with BK polyoma virus ("**BKV**") and/or JC Polyomavirus ("**JCV**"), [*] with BKV and/or JCV (a "**BKV/JCV Program**"), and (C) amounts payable by Atara for any New Research Program including the Program [*], no other consideration shall be payable by Atara for the foregoing amendment of the License Agreement and the grant by Institute to Atara of exclusive license rights in New CTL Products and/or Program [*] arising from such New Research Program.

(e) If Institute provides Atara with a New Research Information Package pursuant to this Section 2.3, and Atara does not wish to fund such research and development activities, or include such research and development activities within the scope of the Research Collaboration, then subject to the terms and conditions of this Agreement and the License Agreement (including Section 7 (Certain Covenants) thereof), Institute may (i) pursue the research and development of such New Research Program independently or with any Affiliate, and/or (ii) shall be free to discuss terms and conditions for the grant of rights to any Third Party to participate in the research, development and commercialization of the New CTL Products that are the subject of such New Research Program, without further obligation to Atara with respect to such New Research Program. For clarity, this subsection (e) shall not apply to any New Research Programs including the Program [*], which shall instead be subject to Section 2.6(e) below.

2.4 **Diligence**. Each Party shall use Commercially Reasonable Efforts to conduct the Research Collaboration by performing the activities allocated to such Party pursuant to this Agreement and the Development Plan (including any activities relating to New Research Programs that the Parties mutually agree to include within the scope of the Research Collaboration).

2.5 **Regulatory Activities**. Atara shall be solely responsible, at Atara's expense, for preparing all submissions to any regulatory authority and making all regulatory filings in the Territory in relation to CTL Products arising from (a) activities conducted with respect to the Allogeneic CTL Programs, (b) activities conducted with respect to the Autologous CTL Programs, and (c) New CTL Products and Program [*] arising out of New Research Programs conducted hereunder, in each case in accordance with Section 5.5 of the License Agreement. Institute was solely responsible at Institute's expense, for preparing all submissions to any regulatory authority and making all regulatory filings in the Territory in relation to CTL Products arising from activities conducted with respect to the Autologous CTL Programs prior to the exercise of the Option pursuant to Section 2.2 of the License Agreement.

2.6 **Specific New Research Programs**.

(a) **HPV CTL Program** . Following discussion through the JSC in accordance with Section 2.3, as of the First Restatement Date, the Parties agreed to include a research and development program directed to the identification and further development of New CTL Products Specifically Directed to such Targets expressed in association with human papilloma virus ("**HPV**"), in such Indications as the Parties may mutually agree in writing from time to time (the "**HPV CTL Program** ") as a New Research Program within the scope of this Agreement. The HPV CTL Program shall be deemed to be an Allogeneic Program. The Parties have agreed upon a development plan for the HPV CTL Program (the "**HPV CTL Development Plan** "), which has been added to and incorporated within the Development Plan, and which the Parties may mutually agree in writing to update from time to time. Any Licensed Products arising as a result of activities under the HPV CTL Research Program shall be subject to the Research Milestone Payments set forth in the column of the table in Section 4.4(a) with the heading "Research Milestone Payment – Licensed Product Arising Directly From Activities under New Research Programs".

(b) **HPV CTL Program Funding** . The Development Plan shall include a mutually agreed budget for the HPV CTL Program (the "**HPV CTL Budget** "), which shall be added to and incorporated within the Budget as set forth in Section 4.2. Institute shall use Commercially Reasonable Efforts to ensure that the FTEs assigned to perform activities under the HPV CTL Program devote at least [*] of their total working time to activities under the HPV CTL Development Plan, unless otherwise mutually agreed by the Parties. The allocation of payments made by Atara to activities under the HPV CTL Program, and the timing of payments to be made to Institute out of such amount shall be set forth in the HPV CTL Development Plan. The Parties may mutually agree upon changes to the HPV CTL Budget (subject to Atara's final decision-making authority under Section 3.3(f) with respect to any increase thereto), or changes in the allocation of the HPV CTL Budget to activities under the HPV CTL Development Plan.

(c) **BKV/JCV CTL Program** . Following discussion through the JSC in accordance with Section 2.3, as of the First Restatement Date, the Parties agreed to include a BKV/JCV Program, in such Indications as the Parties may mutually agree in writing from time to time (the "**BKV/JCV CTL Program**") as a New Research Program within the scope of this Agreement. The BKV/JCV CTL Program shall be deemed to be an Allogeneic Program. The Parties shall mutually agree upon, and update from time to time, a development plan for the BKV/JCV CTL Program (the "**BKV/JCV CTL Development Plan**"), which shall be added to and incorporated within the Development Plan. Any Licensed Products arising as a result of activities under the BKV/JCV CTL Research Program shall be subject to the Research Milestone Payments set forth in the column of the table in Section 4.4(a) with the heading "Research Milestone Payment – Licensed Product Arising Directly From Activities under New Research Programs".

(d) **BKV/JCV CTL Program Funding** . The Development Plan shall include a mutually agreed budget for the BKV/JCV CTL Program (the "**BKV/JCV CTL Budget** "), which is added to and incorporated within the Budget as set forth in Section 4.2. Institute shall use Commercially Reasonable Efforts to ensure that the FTEs assigned to perform activities under the BKV/JCV CTL Program devote at least [*] of their total working time to activities under the BKV/JCV CTL Development Plan, unless otherwise mutually agreed by the Parties. The allocation of payments made by Atara to activities under the BKV/JCV CTL Program, and the timing of payments to be made to Institute out of such amount shall be set forth in the BKV/JCV CTL Development Plan. The Parties may mutually agree upon changes to the BKV/JCV CTL Budget (subject to Atara's final decision-making authority under Section 3.3(f) with respect to any increase thereto), or changes in the allocation of the BKV/JCV CTL Budget to activities

under the BKV/JCV CTL Development Plan. The Parties acknowledge and agree that activities conducted by Institute related to the research, development or manufacture of pharmaceutical or biologic products comprising Autologous CTLs or Allogeneic CTLs Specifically Directed JCV ([*]) between the Original Effective Date and the Execution Date were activities conducted under this Agreement.

(e) **[*] Programs**. Following discussion through the JSC in accordance with Section 2.3 , as of the First Restatement Date, the Parties agreed to include the [*] Programs as a New Research Program within the scope of this Agreement. For the purposes of this Agreement the [*] Programs shall be deemed to be Allogeneic Programs. The Parties previously agreed on a development plan setting out the research and development activities to be conducted for each of the [*] Programs during the [*] Period (the "**[*] Development Plan**", and the "**[*] [*] Development Plan**", and collectively the "**[*] Programs Development Plan**". The Parties have agreed on a revised [*] Development Plan, along with a mutually agreed budget for such activities, as further set forth in subsection (f) below, which has been added to and incorporated within the Development Plan, and which the Parties may mutually agree in writing to update from time to time. If Atara exercises the [*] for the [*] Program pursuant to Section 2.6 of the License Agreement, such Program [*] will become Licensed Products, and such Licensed Products arising as a result of activities under the [*] Programs shall be subject to the applicable Research Milestone Payments set forth in the table in Section 4.4(b).

(f) **[*] Program Funding**.

(i) The [*] Programs Development Plan shall include a mutually agreed budget for each of the [*] Program and the [*] Program (each, a "**[*] Program Budget**"), which the Parties expect to cover all direct and indirect costs of the conduct of the [*] Programs during the [*] Period. The Parties agree that Atara has terminated the [*] for the [*] Program and that they have agreed on a [*] Program Budget for the [*] Program of [*] (the "**Final CMV [*] Budget**"), and that other than the amounts contemplated by the Final [*] Budget, Atara will have no further costs or payment obligations associated with the [*] Program, including any incremental wind-down or close-out costs.

(ii) Atara shall pay an annual amount set forth in the [*] Program Budget existing as at the Execution Date, or after the time period covered by such [*] Program Budget, as otherwise to be agreed by the Parties in accordance with subsection (iii) below, to be allocated against the costs set forth in each [*] Program Budget (each, a " **[*] [*] Research Contribution** " and collectively the "**[*] Research Contribution**"). Institute shall use Commercially Reasonable Efforts to ensure that any FTEs assigned to perform activities under the [*] Programs devote at least [*] of their total working time to activities under the [*] Development Plan, unless otherwise mutually agreed by the Parties. The allocation of the [*] Research Contribution to activities under each of the [*] Programs prior to June 30, 2019 shall be at Institute's discretion and thereafter shall be allocated solely to the [*] Program, and the timing of payments to be made to Institute out of such amount are as set forth in Section 2.6 of the License Agreement. The Parties may mutually agree upon changes to the [*] Research Contribution (subject to Section 2.6(f)(iii) below with respect to a [*] Budget, and to Atara's final decision making authority under Section 3.3(f) with respect to any other increase thereto), or changes in the allocation of a [*] Budget to activities under the [*] Development Plan.

(iii) Following the Execution Date, the Parties shall discuss in good faith through the JSC and otherwise and may mutually agree upon an updated [*] Development Plan and an updated [*] Budget, in each case for the [*] Vaccine Program, to cover such period and such matters and expenditures as are not covered in the [*] Development Plan and [*] Budget agreed as at the Execution Date. Thereafter, the Parties shall update the [*] Development Plan and the [*] Program Budget for the [*] Program at least annually. If, at any time during the term of this Agreement, the Parties are unable to

agree upon either the content of the updated [*] [*] Development Plan or the updated [*] Budget, then (A) Institute shall have the final decision with respect to the [*] Development Plan, and (B) Atara shall have the final decision with respect to the amount of the [*] Research Contribution to be provided by Atara to fund activities during the applicable time period, provided that in no event shall the [*] Research Contribution funded by Atara in any twelve (12) month period for which the [*] Budget is in dispute be less than the greater of (x) the highest amount offered by Atara by way of [*] Research Contribution during such failed negotiations for the applicable twelve (12) month period, and (y) the amount funded by Atara for the [*] Research Contribution for the most recent twelve (12) month period.

2.7 **[*] Manufacturing Support**.

(a) In addition to the funding provided by Atara for the BKV/JCV CTL Program, the HPV CTL Program and [*] Programs set forth in Section 2.6 , Atara paid to Institute a one-off lump-sum payment of [*] (the " **[*] Payment** "), which was used by Institute for [*] (the "**[*] Capacity**"). The QGEN New Capacity shall be used by Institute to provide manufacturing and related services to support activities under all Programs included within the Development Plan, including the BKV/JCV CTL Program, the HPV CTL Program and [*] Programs and any other New Research Programs that may be added to this Agreement from time to time.

(b) In consideration for the [*] Payment, until Institute has [*] necessary for the conduct of (a) [*] (as defined in the License Agreement) and (b) all other [*] set forth in the Development Plan that are [*] the first Licensed Product (including, for clarity, each of (i) the first EBV-Specific CTL Product, (ii) the first HPV-Specific CTL Product, and (iii) the first BKV/JCV-Specific CTL Product) arising from activities under the Research Agreement (the "**[*] Period**"), Institute shall utilize the [*] Capacity for manufacturing activities required under the Development Plan and any other New Research Programs in accordance with the following protocol.

(c) During the [*] Period, on a calendar quarterly basis Atara will issue to Institute in good faith rolling forecasts (each, an "**Atara Forecast**") of its requirements for use of the [*] Capacity for the following six months (the "**Atara Forecast Quantity**"). During the [*] Period, the [*] Capacity shall be used first to manufacture any amounts included in the Atara Forecast Quantity before it can be used for manufacturing services for any Third Party. If Institute wishes to utilize the [*] Capacity for any other activities during the [*] Period, including the performance of activities for Third Parties and/or outside the scope of the Programs included within the Development Plan, it may do so to the extent that such use is not allocated to the Atara Forecast Quantity, provided that Institute shall first obtains Atara's prior written consent to the use of such excess capacity, not to be unreasonably withheld or delayed. Without limiting the foregoing, Institute may not offer the [*] Capacity to any Third Party for services outside any time period covered by an Atara Forecast without Atara's prior written consent, which consent may not be unreasonably withheld or delayed.

3. **GOVERNANCE**.

3.1 **Management** . The Parties have established and shall maintain a cross-functional, joint steering committee (the "**Joint Steering Committee**" or the "**JSC**") which shall oversee the research collaboration between the Parties, including Allogeneic CTL Programs, Autologous Programs, and any agreed New Research Programs conducted under this Agreement and the License Agreement.

3.2 **Alliance Managers**.

(a) Each of Atara and Institute shall appoint one representative who possesses an understanding of development, regulatory, manufacturing and commercialization matters to act as its respective alliance manager(s) for this relationship (an "**Alliance Manager**"). Each Party may replace its respective Alliance Manager at any time upon written notice to the other in accordance with this Agreement. Any Alliance Manager may designate a substitute to temporarily perform the functions of that Alliance Manager. Each Alliance Manager shall be charged with creating and maintaining a collaborative work environment within the JSC. Consistent with the Development Plan, each Alliance Manager, will also be responsible for (i) providing a primary single point of communication responsible for the flow of communication and for seeking consensus (both within such Party's organization and with respect to activities under this Agreement or the License Agreement) regarding key strategy and plan issues, and (ii) identifying and raising disputes to the JSC for discussion in a timely manner; and

(b) Each Alliance Manager shall have the right to attend all JSC meetings and meetings of any subcommittee thereof, as a nonvoting member. Each Alliance Manager may bring any matter to the attention of the JSC where such Alliance Manager reasonably believes that such matter requires attention of the JSC.

3.3 **Joint Steering Committee**.

(a) Composition. The Joint Steering Committee shall be comprised of two (2) named representatives of each Party (or such other number as the Parties may agree) in addition to each Party's Alliance Manager who are members ex-officio. The JSC will be led by two (2) co-chairs, one (1) appointed by each of the Parties. Each Party may replace one or more of its representatives, in its sole discretion, effective upon written notice to the other Party of such change.

(b) Function and Powers of the JSC. The JSC shall, in line with the terms and conditions set forth in the Agreement:

(i) define the scope of the research and development activities to be conducted under this Agreement, including by reviewing and approving the initial Development Plan, and each update to the Development Plan and associated Budget, and review progress against the goals in such Development Plan;

(ii) discuss and agree upon the allocation of the Budget to activities under the Development Plan;

(iii) discuss and comment on updates provided by Institute in relation to the Autologous Programs;

(iv) review and discuss proposals for new Indications for Licensed Products to be included within the activities under the Development Plan;

(v) review and discuss potential Targets for consideration as potential New Research Programs;

(vi) consider, discuss and make recommendations with respect to proposals for New Research Programs;

(vii) discuss Atara's regulatory strategy for IND filing for CTL Products;

(viii) validate and back up the intellectual property strategy;

(ix) review and track publications and proposed publications, and coordinate review and comments on proposed publications by each Party;

(x) establish subcommittees, as appropriate, and support the operation of such subcommittees, including by seeking to resolve disputed matters that may arise at the subcommittees;

(xi) assume a general role of leadership in the collaboration; and

(xii) perform any and all tasks and responsibilities that are expressly attributed to the JSC under this Agreement.

Notwithstanding the foregoing roles and responsibilities, unless expressly set forth in this Agreement or the License Agreement, the JSC shall serve solely as a forum for information exchange with respect to any matters that relate to (i) regulatory matters, including the regulatory strategy and filings for Regulatory Approvals in the Territory, (ii) commercialization of CTL Products (whether or not arising out of this Agreement), (iii) changes to the Budget for activities under the Development Plan with respect to Allogeneic CTL Programs or New Research Programs, and (iv) subject to Article 13 of the License Agreement, intellectual property strategy, including prosecution, maintenance and enforcement activities.

(c) Frequency of Meetings. The JSC shall meet at least once per quarter or more or less often as otherwise agreed by the Parties, and such meetings may be conducted by telephone, videoconference or in person as determined by the co-chairs, provided that no less than two (2) meetings during each calendar year shall be conducted in person. As appropriate, and provided that not less than two (2) business days' prior written notice has been given to the other Party, other employees of the Parties may attend Joint Steering Committee meetings as observers, but a Party shall not bring a Third Party to a meeting without the other Party's prior consent. Each Party may also call for special meetings of the JSC with reasonable prior written notice (it being agreed that at least five (5) business days shall constitute reasonable notice) to resolve particular matters requested by such Party and within the decision-making responsibility of the JSC. Each co-chair shall ensure that its JSC members receive adequate notice of such meetings. Each Party shall be responsible for all of its own expenses incurred in connection with participating in all such meetings.

(d) Subcommittees. The JSC may establish and disband such subcommittees as deemed necessary by the JSC. Each such subcommittee shall consist of the same number of representatives designated by each Party, which number shall be mutually agreed by the Parties. Each Party shall be free to change its representatives on written notice to the other Party or to send a substitute representative to any subcommittee meeting. Each Party's representatives and any substitute for a representative shall be bound by the obligations of confidentiality set forth in Article 6. Except as expressly provided in this Agreement, no subcommittee shall have the authority to bind the Parties hereunder and each subcommittee shall report to the JSC. Each Party shall be responsible for all of its own expenses incurred in connection with participating in all such meetings.

(e) Cooperation. Each Party shall provide the JSC such information as required under the Development Plan, or as reasonably requested by the other Party and reasonably available, relating to the progress of the goals or performance of activities under the Development Plan.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

(f) Decisions. Other than as set forth herein, in order to make any decision required of it hereunder, the JSC must have present (in person, by videoconference or telephonically) at least the co-chair of each Party (or his/her designee for such meeting). Decisions of the JSC shall be by consensus, with each Party having one (1) vote. If the JSC cannot reach consensus or a dispute arises which cannot be resolved within the JSC within [*], the co-chair of either Party may cause such dispute to be referred to the Designated Executive Officers for resolution within [*]. In the event that consensus cannot be reached with respect to a decision after a meeting of the Designated Executive Officers, then, if the decision relates to (A) commercialization of any CTL Product, New CTL Product or [*] that has been included within the License Agreement pursuant to Section 2.3(d), including regulatory strategy for any such CTL Products, New CTL Products or [*] , (B) changes to the Development Plan that would require a material change in the scope of activities for any Program thereunder, or an increase in the Budget for development activities relating to the Allogeneic CTL Programs or the Autologous CTL Programs, including any increase in the Budget pursuant to this Agreement (where Atara has not previously authorized such increase), or (C) the scope of research and development activities under, or budget for, any New Research Program, including whether or not to include such New Research Program within the Research Collaboration, the final decision will be made by [*]. If a dispute arises which cannot be resolved by a subcommittee, the co-chair of either Party may cause such dispute to be referred to the JSC for resolution.

(g) Exceptions. Notwithstanding the foregoing, (i) [*] may not use its final decision making authority to require [*] to the Research Collaboration, without [*]'s prior written consent, and (ii) neither Party in exercising its right to finally resolve a dispute pursuant to Section 3.3(f) shall have any power to (A) cause the other Party to violate any Applicable Law or to breach any agreement between such other Party and any Third Party, or (B) to amend, modify, or waive compliance with the terms of this Agreement.

(h) Authority. The JSC and any subcommittee shall have only the powers assigned expressly to it in this Article 3 and elsewhere in this Agreement, and shall not have any power to amend, modify or waive compliance with this Agreement. In furtherance thereof, each Party shall retain the rights, powers and discretion granted to it under this Agreement and no such rights, powers or discretion shall be delegated or vested in the JSC or subcommittee unless such delegation or vesting of rights is expressly provided for in this Agreement or the Parties expressly so agree in writing.

(i) Discontinuation of JSC. The JSC shall continue to exist until the first to occur of (i) the Parties mutually agreeing to disband the JSC or (ii) until the termination or expiration of the License Agreement.

4. BUDGET; MILESTONES; PAYMENT

4.1 [Reserved]

4.2 **Budget**. Atara shall pay Institute the amounts set forth in the mutually agreed upon budget set forth in Schedule 4.2 (the "Budget"), incorporated herein, to cover all direct and indirect costs of the Allogeneic Programs, EBV Autologous Program, HPV CTL Program and BKV/JCV CTL Program, excluding the [*] Programs, for which budget and funding shall be subject to Section 2.6(f) . The Parties may mutually agree upon changes to the Budget or changes in the allocation of the Budget to activities under the Development Plan by mutual written agreement in a document executed by duly authorized representatives of both Parties or otherwise expressly agreed to in writing by the Alliance Managers and representatives on the JSC of both Parties that states that it is effectuating such changes.

4.3 **Changes to the Budget**. During the term of this Agreement, the Parties may discuss, subject to Atara's final decision making authority pursuant to Section 3.3(f) with respect to the Research Collaboration and any New Research Programs other than the [*] [*] Programs, increases to the Budget for the Research Collaboration, which may include, without limitation, increases in the number of Institute FTEs allocated to perform activities hereunder. For clarity, any budget increases for the [*] Programs shall be subject to Section 2.6(f)(iii) . For the avoidance of doubt , the Parties agree that there is no active Development Plan or Budget for Allogeneic Programs or Autologous Programs Specifically Directed to a Target that is associated with CMV ("**CMV CTL Program**"), and Atara will have no further costs or payment obligations associated with the CMV CTL Program, including any incremental wind-down or close-out costs.

4.4 **Research Milestones**.

(a) As additional consideration for Institute entering into this Agreement and diligently progressing the activities under the Research Collaboration in accordance with this Agreement, Atara has paid, or will pay to Institute the research milestone payments (each, a "**Research Milestone Payment**") set forth in the table below for each Allogeneic CTL Product and/or Autologous CTL Product (as applicable pursuant to the table set forth below) to achieve the corresponding milestone (each, a "**Research Milestone**"), whether achieved by Institute, Atara or an Affiliate or sublicensee of Atara. The Party achieving such Research Milestone shall promptly notify the other Party in writing of the achievement of any such Research Milestone and Atara shall pay Institute in full the corresponding Research Milestone Payment within [*] of such achievement. For clarity, each Research Milestone Payment is payable once only for each Allogeneic CTL Product and once for each Autologous CTL Product, and each Research Milestone Payment is non-refundable, and is not an advance against royalties due to Institute or any other amounts due to Institute. The Parties acknowledge and agree that as of the Execution Date, Atara has paid the Research Milestone Payment for First Dosing in a Human Subject for a CTL Product Specifically Directed to EBV for a first Allogeneic CTL Product.

	Research Milestone Trigger Event	**Research Milestone Payment**	
		CTL Product Specifically Directed to [*]	**Licensed Product Arising Directly From Activities under New Research Programs**
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]

*Milestone payable only once with respect to each Allogeneic Licensed Product to achieve such Milestone.

**Milestone payable once for each Allogeneic CTL Product and for each Autologous CTL Product to achieve such Research Milestone.

(b) As consideration for Institute entering into this Agreement and diligently progressing the activities under the Research Collaboration with respect to the [*] [*] Programs in accordance with this Agreement, Atara:

(i) paid to Institute a fixed fee of two million five hundred thousand dollars ($2,500,000) within fifteen (15) business days following the Original Effective Date (which fee is non-refundable and non-creditable against any other amounts due under this Agreement), and

(ii) will pay to Institute the following milestone payments with respect to research and development activities conducted under the [*] Program (each, a "**[*] Milestone Payment**") set forth in the table below for each [*] to achieve the corresponding milestone (each, a "**[*] Milestone**"), whether achieved by Institute, Atara or an Affiliate or sublicensee of Atara. The Party achieving such [*] Milestone shall promptly notify the other Party in writing of the achievement of any such [*] Milestone and Atara shall pay Institute in full the corresponding [*] Milestone Payment within thirty (30) days of such achievement. For clarity, each [*] Program Milestone Payment is payable once only for the first [*] to reach the applicable milestone event, and each [*] Program Milestone Payment is non-refundable, and is not an advance against royalties due to Institute or any other amounts due to Institute.

	[*] Milestone Trigger Event	**[*]**
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]

(c) Unless a Research Milestone Payment or [*] Program Milestone Payment is specified as payable for more than one Indication in the tables in (a) and (b) above respectively, each Research Milestone Payment and [*] Program Milestone Payment will be payable by Atara only once, following the first time a given CTL Product or [*] [*], as applicable, developed under this Agreement achieves the specified Research Milestone or [*] Milestone. For example, with respect to the Research Milestone Payments, Research Milestone 2 in the table above shall be payable for a given Allogeneic CTL Product upon the first dosing of a patient in a Phase II Clinical Trial in for treatment of [*], but shall not be payable for such Allogeneic CTL Product for any subsequent Phase II Clinical Trial in gastric cancer, MS (in any country), or for [*] (in [*]).

(d) Each time a Research Milestone or [*] Milestone (as applicable) is achieved, then any other Research Milestone Payments with respect to earlier Research Milestones or [*] Program Milestone Payments with respect to earlier [*] Milestones that have not yet been paid will be due and payable together with the Research Milestone Payment for the Research Milestone, or [*] Program Milestone Payments for the [*] Milestone, as applicable, that is actually achieved.

(e) If, with respect to a given CTL Product developed or commercialized under this Agreement or the License Agreement and a given Indication, Atara elects to progress the development and commercialization of an Autologous CTL Product in lieu of an Allogeneic CTL Product for such Indication, then (i) following the decision to progress development and commercialization of such Autologous CTL Product, Atara shall owe all subsequent Research Milestone Payments due for such Autologous CTL Product, and (ii) subsection (c) shall apply solely with respect to any Research Milestone Payments that are applicable to both Autologous CTL Products and Allogeneic CTL Products, and have not already been paid for the Allogeneic CTL Product.

4.5 **Other Payments**.

(a) Atara shall pay any amounts agreed to by Atara and included in the Budget to Institute on a Calendar Quarterly basis in advance, based on the allocation of such amounts to activities under the Development Plan for the applicable Calendar Quarter. Institute shall submit invoices to Atara on a Calendar Quarterly basis, no later than [*] prior to the last day of each Calendar Quarter, setting forth the amounts payable for the upcoming Calendar Quarter and the activities to which such amounts are allocated under the Development Plan. The first invoice shall be due under this Agreement no later than thirty (30) days following the Original Effective Date. Each invoice shall be signed by an authorized official of Institute. Atara shall make payment by wire transfer to Institute's nominated bank account.

(b) Atara shall pay the [*] Program Research Contribution (and any other amounts agreed to by Atara and included in the [*] Program Budgets) as set forth in Section 2.6(c) and (d) of the License Agreement.

5. PRINCIPAL INVESTIGATOR AND PERSONNEL

5.1 **Principal Investigator.** For the purpose of this Agreement and pursuant to Institute policy, Principal Investigator shall be responsible for the administration, direction, and content of the Research Collaboration, including expenditures under the Budget, and revisions to the allocation and individual expenditures within the overall framework, and subject to the overall cap, of the Budget, in each case necessary to accomplish the Research Collaboration. Should the Principal Investigator leave Institute or otherwise become unavailable during the term of this Agreement, Institute may nominate a replacement. In the event that the Principal Investigator becomes unable or unwilling to continue the Research Collaboration, and a substitute reasonably acceptable to Atara is not available, Atara shall have the right to terminate the Research Collaboration and this Agreement by giving written notice to Institute.

5.2 **Other Commitments.** Except as otherwise agreed, it is further understood that Institute and the personnel performing the Research Collaboration may be or become involved in other activities and projects which entail commitments to other Third Parties ("**Other Work** "). The Principal Investigator and the personnel performing the Research Collaboration will use Commercially Reasonable Efforts to progress the Research Collaboration in accordance with terms of the Development Plan, including any timelines set forth therein. Institute and the personnel performing the Research Collaboration will each use their best efforts to avoid conflicts with the terms and obligations of this Agreement. The Principal Investigator will provide Atara with written notice as soon as practicable if he becomes aware of a conflict or potential conflict that may materially impose upon his ability to perform activities under the Development Plan and this Agreement. Nothing in this Agreement shall be construed to limit the freedom of Institute, or their researchers who are not participants in the Research Collaboration under this Agreement, from engaging in Other Work made under other agreements with other parties than Atara. Notwithstanding the foregoing, Institute and the Principal Investigator shall use all reasonable efforts to distinguish the research performed in connection with the Research Collaboration under this Agreement from all Other Work, and shall keep records pertaining to such Other Work separately from the records to be maintained pursuant to Article 8.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

6. **CONFIDENTIALITY**

6.1 **Confidential Information**. Atara and Institute will treat and maintain the other Party's Confidential Information in confidence using at least the same degree of care as the receiving Party uses to protect its own proprietary and confidential information of a like nature from the date of disclosure until [*] after the termination or expiration of this Agreement, provided that a Party may designate one or more specific, defined items of Confidential Information as 'Trade Secret', by giving written notice to the other Party briefly outlining its reasons why longer protection is warranted, and in such case the other Party shall protect such information indefinitely unless and until Section 6.4 applies. Confidential Information can be written, oral, or both.

6.2 **Relationship to Existing Confidentiality Agreement**. This Agreement supersedes that certain Confidential Disclosure Agreement entered into between Atara and Institute, dated May 28, 2015 (the "**Existing Confidentiality Agreement**"); provided that all "Confidential Information" disclosed by the disclosing party thereunder shall be deemed Confidential Information of the disclosing Party hereunder and shall be subject to the terms and conditions of this Agreement and the receiving party thereunder shall be bound by and obligated to comply with such terms and conditions as if they were the receiving Party hereunder. The foregoing shall not be interpreted as a waiver of any remedies available to the disclosing party as a result of any breach, prior to the Original Effective Date, by the receiving party, respectively, of its obligations pursuant to the Existing Confidentiality Agreement.

6.3 **Permitted Disclosure**. Atara and Institute may use and disclose the other Party's Confidential Information to their Affiliates, employees, agents, consultants, contractors, and, in the case of the Atara, its Sublicensees, in each case on a need to know basis for the purposes of such Affiliates, Sublicensees and Third Parties performing activities under this Agreement or the License Agreement, provided that such parties are bound by a like duty of confidentiality as that found in this Article 6. Furthermore, Atara may disclose Institute's Confidential Information to: (a) Atara's potential or actual collaborators, partners, licensees and Sublicensees, and (b) potential or actual investment bankers, acquirers, lenders or investors, and (c) advisors of Atara or any of the foregoing in (a) and (b); each of whom, prior to disclosure, must be bound by similar obligations of confidentiality and non-use as set forth in this Article 6.

6.4 **Limitations**. Nothing contained herein will restrict or impair, in any way, the right of Atara or Institute to use or disclose any of the other Party's Confidential Information:

(a) that recipient can demonstrate by written records was previously known to it prior to its disclosure by the disclosing Party;

(b) that recipient can demonstrate by written records is now, or becomes in the future, public knowledge other than through acts or omissions of recipient;

(c) that recipient can demonstrate by written records was obtained lawfully and without restrictions on the recipient from sources independent of the disclosing Party; and

(d) that a Party is required to disclose pursuant to applicable law, rule or regulation.

6.5 **Other Disclosures**. Atara or Institute also may disclose Confidential Information that is required to be disclosed: (i) to a governmental entity or agency in connection with seeking any governmental or regulatory approval, governmental audit, or other governmental contractual requirement; or (ii) by law, provided that the recipient uses reasonable efforts to give the Party owning the Confidential

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Information sufficient notice of such required disclosure to allow the Party owning the Confidential Information reasonable opportunity to object to, and to take legal action to prevent, such disclosure. Notwithstanding anything to the contrary in this Agreement, Atara may disclose Confidential Information it receives pursuant to this Agreement, to its actual or potential investors, acquirors, advisors, Sublicensees, consultants and employees who are bound by obligations of confidentiality with respect thereto.

6.6 **Return of Information**. Upon expiration or termination of this Agreement (unless the License Agreement remains in effect), or the request of the disclosing Party, if earlier, Atara and Institute will destroy or return any of the disclosing Party's Confidential Information in its possession within [*] following the termination of this Agreement and provide each other with prompt written notice that such Confidential Information has been returned or destroyed. Each Party may, however, retain one (1) copy of such Confidential Information for archival purposes in non-working files. If the License Agreement remains in effect as of the date of termination or expiration of this Agreement, then all Confidential Information disclosed pursuant to this Agreement, if not returned or destroyed at the disclosing Party's request pursuant to this Section 6.6, shall be deemed Confidential Information subject to the terms and conditions of Article 22 of the License Agreement.

7. PUBLICATION

7.1 **Publication.** Either party, consistent with academic standards, may publish or present the Data (as defined in Article 8 below), provided such publication or presentation does not disclose the other party's Confidential Information. The Parties agree that any publication or presentation of Data shall appropriately cite the contributions of both Parties, using customary standards of scientific attribution. Each Party shall provide the other Party with a copy of such publication or presentation [*] prior to submission for presentation or publication to permit protection of any Confidential Information and/or patent rights, if desired and applicable. The other Party shall have [*], after receipt of said copies, to object to such proposed presentation or proposed publication because it includes patentable subject matter which needs protection or because it includes Confidential Information of such other Party. In the event that the other Party makes such objection, the publishing party shall refrain from making such publication or presentation for a maximum of [*] from date of receipt of such objection in order to allow the other Party to seek patent protection on any patentable Inventions included in the proposed publication or presentation, and the publishing Party shall remove the other Party's Confidential Information from such publication or presentation before submitting or presenting it to any Third Party. Atara further agrees that Institute shall have the first right to publish any results of the Research Collaboration, pursuant to the terms of this Article 7. In the case of Confidential Information of Atara being results of the Research Collaboration, Institute may publish a publication or presentation containing such information after taking into account any comments by Atara in good faith and after allowing Atara to seek patent protection in accordance with this Section 7.1, unless Atara (acting reasonably) designates such information as a 'Trade Secret'.

7.2 No Use of Names. Neither Party will use the name of the other Party or its employees in any advertisement, press release, or other publicity without prior written approval of the other Party.

8. REPORTS; RIGHTS IN DATA

8.1 **Reporting.** Each Party shall, in accordance with its established practice, keep complete and accurate records of the work performed under this Agreement, including all expenditures under the Budget. Institute shall provide Atara with a written report, prior to any meeting of the JSC, or at such other frequency as is mutually agreed to by the Parties (the "**Interim Reports**"). Such reports shall set forth, at a minimum: (a) the activities performed and to be performed under the Development Plan, (b) results generated during the conduct of the Research Collaboration, (c) any CTL Products or, New CTL

Products or [*] identified, (d) the quality and quantity of any materials (including without limitation biological or chemical compounds or raw materials) transferred by either party for the purposes of progressing the Research Collaboration and (e) material expenditures of funds under the Budget, and (f) subject to any obligations of confidentiality to any Third Party, a summary of activities of Atara and its Affiliates relevant to the research and development of CTL Products outside the Research Collaboration, excluding information regarding Atara's activities under the MSK Agreement. Institute shall provide a comprehensive final written report of all activities conducted, and all results and data generated (collectively "**Data**") under the Autologous Programs, the Allogeneic Programs, and any New Research Programs within ninety (90) days after termination of this Agreement ("**Final Report**"). During the course of the Research Collaboration, Atara's representatives may consult informally with the Principal Investigator at his or her discretion and convenience regarding the Research Program. Atara shall also be required to provide Interim Reports in accordance with this Section 8.1, on a Program-by-Program basis: (i) for the Allogeneic Programs, following completion of Phase I Clinical Trials for the applicable Allogeneic Program(s), and (ii) for the Autologous Programs, in consultation with Institute.

8.2 **Rights in Data.** Institute shall own all Interim Reports and the Final Report, and information and data contained therein or arising from the activities conducted under this Agreement and the Development Plan. Subject to the provisions of Articles 6 and 7, Atara shall have the unencumbered right to use the Interim Reports and the Final Report[s], and any and all information and Data contained therein for any and all purposes, including the right to reference such Data and information in any regulatory filings in relation to any CTL Product, New CTL Product or Program [*] under this Agreement or the License Agreement, and shall have the right to grant or sublicense to others the right to so use and reference such Data and information.

9. INTELLECTUAL PROPERTY

9.1 **Ownership.** With the exception of the rights granted to Institute to perform its obligations under this Agreement, and the rights granted to Atara pursuant to the License Agreement, each Party shall retain all right, title and interest in and to its Background IP. Except as provided in Section 9.4, inventorship/authorship of all patents, copyrights, trade secrets and other intellectual property rights, in and to all tangible materials (including without limitation all biological materials), inventions, discoveries, and software conceived or first made in the performance of the Research Collaboration under this Agreement ("**Inventions**") will be determined in accordance with U.S. patent/copyright law, such that all Inventions that are conceived or made solely by one or more employees of Atara in the course of the Research Collaboration and are not Improvements ("**Atara Inventions**") shall be owned solely by Atara and all Inventions which are conceived or made solely by one or more employees of Institute in performance of Research Collaboration and are not Improvements ("**Institute Inventions**") shall be solely owned by Institute.

9.2 **Joint Inventions**. Inventions that are jointly conceived or reduced to practice by one or more employees, consultants or contractors of each Party, shall be jointly owned by the parties (each such invention, a "**Joint Invention**"). Ownership of all Inventions shall vest in the party to whom the inventor has an obligation of assignment. Institute will obtain agreements securing the assignment to Institute of all Inventions and intellectual property rights from the Principal Investigator and all employees, other agents and consultants who perform any part of the Research Collaboration at Institute that are necessary to enable Institute to grant to Atara all rights Institute purports to grant under this Agreement and the License Agreement. Subject to the terms and conditions of the License Agreement, including any exclusive licenses granted thereunder (for such time as such licenses have effect), each Party shall have all rights under any jointly owned patent, patent application or other form of intellectual property protection relating to any Joint Invention to use, research, develop, and commercially exploit such Joint Invention and to license and sublicense Third Parties (through multiple tiers of sublicensing) to do so.

9.3 **Inclusion within the License Agreement** . All Institute Inventions arising under this Agreement shall be automatically included, upon their creation, within the Patent Rights and Know-How Rights under the License Agreement, and shall be subject to the terms and conditions of the License Agreement, provided that for clarity, Atara shall only have rights to practice under any such Institute Inventions in relation to [*] of the License Agreement.

9.4 **Improvements to Background IP**. Notwithstanding Sections 9.1 and 9.2, Institute shall be the sole owner of any Inventions that are claimed or covered by patents and patent applications claiming priority to any patent or patent application included in the Patent Rights, as such Patent Rights exist as of the Original Effective Date (such Inventions, the "**Institute Background IP Improvements**"). Atara shall assign, and hereby assigns to Institute, all of Atara's right, title and interest in and to the Institute Background IP Improvements. Without limiting the foregoing, Institute Background IP Improvements shall be included, upon their creation by either Party (or assignment by Atara to Institute in accordance with this Section 9.4, if applicable), within the Patent Rights, and shall be subject to the terms and conditions of the License Agreement, including the licenses granted therein.

9.5 **Option to License Atara IP**. In addition to such rights of reversion as are contained in the License Agreement, Atara will, prior to granting or offering to grant to any Third Party any license or other right to research, develop or commercially exploit any Atara Invention, first discuss with Institute in good faith for a period of not less than [*] whether, and on what terms, Institute may wish to use or license such Atara Invention in fields or applications not the subject of the License Agreement.

9.6 **Disclosure**. Institute will require the Principal Investigator and other investigators to promptly disclose all Inventions and Joint Inventions generated during the term of this Agreement to Institute's Business Development Office in accordance with Institute policy with respect to ownership and disclosure of Inventions (and Joint Inventions). Institute or the Business Development Office of Institute, as applicable, will notify Atara promptly in writing following disclosure of a Institute Invention by any inventor, and disclose in confidence to Atara all Institute Inventions, including sufficient detail to enable Atara to evaluate such Institute Invention.

9.7 **Patent Filings**.

(a) Joint Inventions. Institute will use reasonable efforts to ensure that Atara has the first opportunity to file a patent application or application for other intellectual property protection on any Joint Inventions. Institute's rights in any Joint Invention shall be automatically included within the Know-How Rights or the Patent Rights, as applicable, under the License Agreement, and shall be subject to all of the terms and conditions of the License Agreement. Atara's prosecution and maintenance of any patents and patent applications arising from Joint Inventions shall be conducted in accordance with Section 13.2 of the License Agreement. If Atara elects not to file a patent application or application for other intellectual property protection on any Joint Inventions, or decides that it does not wish to provide financial support for the prosecution or maintenance of the protection for such Joint Inventions, Institute shall thereafter be free to file or continue prosecution or maintain any such application(s), and to maintain any protection issuing thereon in the U.S. and in any foreign country at Institute's sole expense and with no further obligation to Atara, and such patent or patent application shall not be included within the Patent Rights under the License Agreement.

(b) Inventions. Section 13.2 of the License Agreement shall apply to all filing, prosecution and maintenance of any patents and patent applications arising from Institute Inventions and Institute Background IP Improvements. Atara shall have the sole right, but not the obligation to file, prosecute and maintain patents and patent applications arising from the Atara Inventions.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

9.8 Except as expressly provided herein or in the License Agreement, nothing contained in this Agreement shall be deemed to grant either directly or by implication, estoppel, or otherwise any license under any patents, patent applications, or other proprietary interests to any other invention, discovery, or improvement of either Party.

10. EXCHANGE OF MATERIALS

All materials, including any CTLs, including progeny and modified or unmodified derivatives, exchanged pursuant to this Agreement shall remain the property of the providing Party and shall be used solely for the purposes of the Research Collaboration, unless otherwise mutually agreed in writing. Upon expiration or termination of this Agreement, the unused portions of such materials will be returned promptly to the providing Party or will be disposed of as directed by the providing Party in writing.

11. SUPPLIES AND EQUIPMENT

In the event that Institute purchases supplies or equipment under the Budget for the Research Collaboration, title to such supplies and equipment shall vest in Institute, unless the Parties mutually agree otherwise in writing.

12. INDEMNIFICATION

12.1 **Atara Indemnification**. Atara agrees to indemnify, defend and hold harmless Institute and its trustees, officers, staff, representatives and agents ("**Institute Indemnitees**") against all damages, costs, expenses, losses and liabilities (" **Losses**") actually awarded by a court of competent jurisdiction or agreed in settlement, as a result of any third party claims, demands, suits, or other actions ("**Claims**") arising from (a) Atara's use of the Data or Inventions in connection with Atara's activities pursuant to the License Agreement, including the development and commercialization of CTL Products and any New CTL Products and Program [*] (in each case, if applicable), (b) Atara's breach of this Agreement or the Development Plan (including without limitation Atara's breach of its representations and warranties), (c) the negligent or wrongful acts or omissions or of any Institute officer, agent, or employee the negligent or intentional acts or omissions or breach of this Agreement (including without limitation Atara's breach of its representations and warranties) by Atara and its officers, agents, and employees; provided that Atara will have no obligation to indemnify Institute Indemnitees to the extent that any such Claim is based on Institute's negligence, willful misconduct or breach of this Agreement (including without limitation Institute's breach of its representations and warranties).

12.2 **Institute Indemnification**. Institute agrees, to the extent permitted by law, to indemnify, defend and hold harmless Atara and its stockholders, officers, staff, representatives and agents ("**Atara Indemnitees** ") against all Losses actually awarded by a court of competent jurisdiction or agreed in settlement, as a result of any Claims arising from (a) any activities related to the [*] Program occurring after June 30, 2019 and (b) any other CMV-related activities of Institute following the Execution Date; provided that Institute will have no obligation to indemnify Atara Indemnitees to the extent that any such Claim is based on Atara's negligence, willful misconduct or breach of this Agreement (including without limitation Atara's breach of its representations and warranties).

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

13. **NOTICE**

Except for the remittance of payments due pursuant to the terms hereof, whenever any notice is to be given hereunder, it shall be in writing and shall be deemed received, if delivered by courier on a business day, on the day delivered, or on the second business day following mailing, if sent by first-class certified or registered mail, postage prepaid, to the following addresses:

Institute: QIMR Berghofer Medical Research Institute
300 Herston Road,
Herston, QLD, 4006
Attention: Chief Operating Officer

Atara: **Atara Biotherapeutics, Inc.**
611 Gateway Blvd. #900
South San Francisco, CA 94080
Attn: General Counsel

14. **DISPUTE RESOLUTION**

14.1 **Executive Resolution**. The parties shall initially seek amicably to settle all disputes (each, a " **Dispute**") arising out of or in connection with this Agreement (including any Dispute relating to Development Plan and performance of activities thereunder) by negotiation, including discussion at the JSC, subject to the Parties' respective final decision making authority as set forth in Section 3.3(f). If, within [*] after written notice by either Party of the existence of a dispute, the Parties do not resolve such Dispute, then the Dispute shall be referred by the JSC to the Executive Officers from each Party for further negotiation. If the Designated Executive Officers of each Party cannot resolve such Dispute, then subject to Sections 3.3(f) and 14.7, such Dispute will be referred to final binding arbitration in accordance with Sections 14.2 through 14.6.

14.2 **Arbitration**. Any Dispute referred for arbitration shall be finally settled under the Rules of the International Centre for Dispute Resolution (the "**Rules of Arbitration**") then in force, by one arbitrator appointed in accordance with such Rules of Arbitration. The Arbitral Tribunal shall be guided by the IBA Rules on the Taking of Evidence in International Arbitration, and there shall be no depositions. The place of the arbitration shall be New York, New York, United States of America. The language of the arbitration shall be English.

14.3 **Selection of the Arbitrator**. Each arbitrator shall have [*] of experience in arbitrating disputes in the pharmaceutical industry, or of pharmaceutical licensing disputes and be admitted to practice law in the United States of America. The arbitrator conducting the arbitration must and shall agree to render an award within [*] after the final hearing. The arbitrator [*]. Without limiting any other remedies that may be available under Applicable Laws, the arbitrator shall have [*].

14.4 **Conduct of the Arbitration**. The Parties undertake to keep confidential all awards in their arbitration, together with all materials in the proceedings created for the purpose of the arbitration and all other documents produced by another Party in the proceedings not otherwise in the public domain, save and to the extent that disclosure may be required of a Party by legal duty or under Applicable Law, the rules and regulations of any stock exchange or quotation services on which such Party's stock is traded or quoted, to protect or pursue a legal right or to enforce or challenge an award in legal proceedings before a court or other judicial authority.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

14.5 **Continued Performance**. Unless otherwise agreed in writing, the Parties will continue to perform their respective obligations under this Agreement during any arbitration or court proceeding seeking enforcement of an arbitral decision or award, and, unless this Agreement is in its entirety deemed null and void or is otherwise revoked or rescinded in its entirely, the Parties shall continue to perform their respective remaining obligations under this Agreement, and may continue to exercise their respective remaining rights and remedies thereunder, following any arbitration.

14.6 **Preliminary Injunctions**. Notwithstanding anything in this Agreement to the contrary, a Party may seek a temporary restraining order or a preliminary injunction from any court of competent jurisdiction in order to prevent immediate and irreparable injury, loss, or damage on a provisional basis, pending the decision of the arbitrator(s) on the ultimate merits of any Dispute.

14.7 **Patent Disputes**. Notwithstanding anything in this Agreement to the contrary, any dispute concerning inventorship that is not resolved within [*] following notice by one party to the other of the creation or reduction to practice of any Invention, and any dispute regarding any and all issues regarding the scope, construction, validity, and enforceability of any patent or patent application (including whether or not such patent or patent application should be included in the Patent Rights under the License Agreement) in a country within the Territory shall be determined in a court or other governmental authority of competent jurisdiction under the applicable patent laws of such country.

15. TERM AND TERMINATION

15.1 **Term**. This Agreement shall be effective from the Original Effective Date until all Research Milestone Payments under Section 4.4 have been paid, (the "**Term**"), unless earlier terminated in accordance with this Article 15.

15.2 **Termination of License Agreement**. This Agreement will terminate automatically in the event that the License Agreement is terminated, provided that prior to such termination of this Agreement becoming effective, the Parties shall cooperate to wind down the activities being conducted hereunder as set forth in Section 15.5(b).

15.3 **Termination for Failure of the Research Collaboration.** This Agreement may be terminated by Institute or Atara at any time upon the giving of thirty (30) days' prior written notice to the other if either party determines, in its discretion, that the Research Collaboration is no longer academically, technically, or commercially feasible.

15.4 **Termination for Material Breach**. In the event that either party materially breaches any of its obligations under this Agreement and shall fail to remedy such default within thirty (30) days after written notice thereof, the party not in default shall have the option of terminating this Agreement by giving written notice of termination with an immediate effect to the defaulting party.

15.5 **Effects of Termination.** Following termination, but not expiration of this Agreement, the following shall apply:

(a) Termination of this Agreement shall not affect the rights and obligations of the parties accrued prior to termination.

(b) Promptly following any notice of termination of this Agreement, the Parties shall meet, through the JSC, to discuss and agree upon the steps to be taken to wind down the activities being conducted under the Research Collaboration, (the "**Wind Down Activities**"). Unless requested in writing by Atara, agreed by the Parties to be included within the budget for any Wind Down

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Activities, or already committed to be paid by Institute on a non-cancelable basis prior to the date of notice of termination, Institute shall not incur any additional costs or expenses in conducting activities under this Agreement following the date of notice of termination. Atara agrees to reimburse Institute for (i) any non-cancelable obligations actually incurred by Institute prior to termination in accordance with the Research Collaboration, provided such amounts have been incurred in accordance with the Budget, and (ii) any costs incurred in relation to the Wind Down Activities thereunder as mutually agreed by the JSC. Following wind-down of the Research Collaboration Atara shall have no further obligations to make any payments to Institute.

(c) All materials, information and data, including any Confidential Information, provided by one Party to the other Party pursuant to this Agreement shall be returned to the disclosing Party as set forth in Section 6.6 and Article 10.

(d) The Parties' rights in CTL Products, New CTL Products and [*] arising from the conduct of activities under this Agreement prior to the effective date of termination shall be subject to Sections 9.6(b), (c), (e), (f), (g) and (i), 9.7 and 9.9 of the License Agreement.

15.6 **Survival.** Upon termination or expiration of this Agreement, any provisions herein which are intended to continue and survive such termination or expiration, including Articles 1, 6, 7, 8, 9, 10, 12, 13, 14 and 16 through 23, and Sections 4.4 (to the extent that the License Agreement has not expired or terminated, and subject to Section 9.6(b) of the License Agreement) and 15.5 shall survive any expiration or termination of this Agreement.

16. **APPLICABLE LAW**

This Agreement shall be governed by the laws of the State of New York without regard to the conflict of law principles thereof. Any disputes arising hereunder shall be adjudicated accordance with Article 14.

17. **WAIVER**

No waiver by either Party of any breach or default of any of the agreements contained herein will be deemed a waiver as to any subsequent and/or similar breach or default. No waiver of this Agreement is valid or binding on the Parties unless made in writing (identifying the provision that is waived) and signed on behalf of each Party.

18. **ASSIGNMENT**

Neither party hereto may assign or transfer any rights or obligations under this Agreement without the prior written consent of the other party, except that no such consent shall be required for a party to assign its rights or transfer its obligations to its Affiliates or in connection with the sale or transfer of the majority of its stock or all or substantially all of its assets to which this Agreement relates, whether as part of a merger, acquisition, or asset sale. Any assignment in violation of this Agreement will be null and void. This Agreement benefits and binds the parties and their respective successors and permitted assigns.

19. **ENTIRE AGREEMENT**

This Agreement, together with the License Agreement, any Manufacturing Agreement executed by the Parties, and any Exhibits to any of the foregoing, represents the entire understanding of the Parties and supersedes any prior or contemporaneous agreements or understandings between Principal Investigator or Institute with Atara with respect to the subject matter hereof, including the Original Research Agreement

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and the First Restated Agreement. Furthermore, no modification, supplement, or new agreement may be executed, prior to the expiration of this Agreement, between Institute and Atara with respect to the subject matter hereof, without formal written amendment to this Agreement, signed by all Parties.

20. **INDEPENDENT CONTRACTOR**

In performing their respective duties under this Agreement, each of the Parties will be operating as an independent contractor. Nothing contained herein will in any way constitute any association, partnership, or joint venture between the Parties hereto, or be construed to evidence the intention of the Parties to establish any such relationship. Neither Party will have the power to bind the other Party or incur obligations on the other Party's behalf without the other Party's prior written consent.

21. **SEVERABILITY**

If any one or more of the provisions contained in this Agreement shall be held invalid, illegal, or unenforceable for any reason or in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions hereof, and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein.

22. **CONSTRUCTION**

The headings of the Sections are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement. Except where the context otherwise requires, wherever used, the use of any gender will be applicable to all genders, and the word "or" is used in the inclusive sense. When used in this Agreement, "including" means "including without limitation". References to either Party include the successors and permitted assigns of that Party. The Recitals are incorporated by reference into this Agreement. The headings of this Agreement are for convenience of reference only and in no way define, describe, extend or limit the scope or intent of this Agreement or the intent of any provision contained in this Agreement. The Parties have each consulted counsel of their choice regarding this Agreement, and, accordingly, no provisions of this Agreement will be construed against either Party on the basis that the Party drafted this Agreement or any provision thereof. The official text of this Agreement, any notice given or accounts or statements required by this Agreement, and any dispute proceeding related to or arising hereunder, will be in English. If any dispute concerning the construction or meaning of this Agreement arises, then reference will be made only to this Agreement as written in English and not to any translation into any other language.

23. **COUNTERPARTS**.

This Second Restated Agreement may be executed in one or more counterparts, each of which together shall constitute one and the same Agreement. For purposes of executing this Second Restated Agreement, a facsimile (including a PDF image delivered via email) copy of this Second Restated Agreement, including the signature pages, will be deemed an original. The Parties agree that neither Party will have any rights to challenge the use or authenticity of a counterpart of this Second Restated Agreement based solely on that its signature, or the signature of the other Party, on such counterpart is not an original signature.

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IN WITNESS WHEREOF, the undersigned have entered into this Second Restated Agreement as of the date first set forth above.

Agreed and Accepted By:

Atara Biotherapeutics, Inc.:

By: _____
Name:
Title:

The Council of the Queensland Institute of Medical Research:

By: _____
Name:
Title:

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SCHEDULE 1.15
FTE RATES*

[*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

SCHEDULE 2.2
DEVELOPMENT PLAN

[*]

214336848 v1 [*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

SCHEDULE 4.2
BUDGET

[*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Exhibit 10.4

SECOND AMENDED AND RESTATED EXCLUSIVE LICENSE AGREEMENT

between

THE COUNCIL OF THE QUEENSLAND INSTITUTE OF MEDICAL RESEARCH

and

ATARA BIOTHERAPEUTICS, INC.

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SECOND AMENDED AND RESTATED EXCLUSIVE LICENSE AGREEMENT

This **SECOND AMENDED AND RESTATED EXCLUSIVE LICENSE AGREEMENT** ("**Second Restated Agreement**") is entered into on 28th August 2019 ("**Execution Date** "), and effective as of the Execution Date, by and between the **COUNCIL OF THE QUEENSLAND INSTITUTE OF MEDICAL RESEARCH** , a not-for-profit Institute organized and existing under the laws of the State of Queensland having its principal offices at 300 Herston Rd, Herston QLD 4006, Australia ("**Institute**"), and **ATARA BIOTHERAPEUTICS, INC.**, a Delaware corporation located at 611 Gateway Blvd #900, South San Francisco, CA 94080 ("**Licensee**"). Each of Licensee and Institute are referred to in this Agreement as a "**Party**" and together, the "**Parties**".

RECITALS

WHEREAS, Institute owns or controls certain technology, including certain patent rights and know-how, and has expertise and knowledge relating to allogeneic and autologous cytotoxic T-lymphocytes ("**CTL**") directed to antigens expressed in association with certain viral infections, for use in oncology and autoimmune indications, made in the course of research at Institute in the laboratory of [*] and are claimed in certain Patent Rights (as defined herein);

WHEREAS, Licensee is a party to a certain agreement with Memorial Sloan Kettering Cancer Center (the "**MSK Agreement**", as further defined below), pursuant to which Licensee obtained [*] at Memorial Sloan Kettering Cancer Center in the laboratory of [*], including [*] to targets that include, inter alia, EBV and CMV;

WHEREAS, Licensee and MSK consider the technology and patent rights owned or controlled by Institute to be complimentary and/or supplemental to the rights licensed to Licensee by Memorial Sloan Kettering Cancer Center under the MSK Agreement, and that such Institute technology will be useful for the development, production, or use of Licensed Products (as defined herein) specific to EBV;

WHEREAS, Licensee wishes to obtain certain rights from Institute to use such Institute technology and patent rights for the commercial development of (a) products based on novel allogeneic and autologous CTLs, and (b) [*], in each case directed to viral antigens expressed in association with certain diseases and conditions, in accordance with the terms and conditions set forth herein, and Institute is willing to grant those rights to Licensee so that such products may be developed and the benefits enjoyed by the general public;

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

WHEREAS, Licensee and Institute are parties to that certain exclusive License Agreement (the "**Original License Agreement**"), entered into on October 20, 2015 (the "**Original Effective Date**"), which was amended and restated as of September 23, 2016 (the "**First Restatement Date**") pursuant to that certain Amended and Restated Exclusive License Agreement (the "**First Restated Agreement**") effective as of the Original Effective Date, and now the Parties desire to amend and restate the First Restated Agreement in its entirety to, [*] without affecting Licensees rights to CTL Products, New CTL Products and EBV [*], all as set forth in this Second Restated Agreement; and

WHEREAS, the Parties further desire that Institute continues to carry out certain research and development activities already being conducted at or under the supervision of Institute, including certain clinical studies directed to the use of autologous CTL therapies in certain oncology and autoimmune indications associated with the expression of EBV [*] on or in tumor and other cells, and to that end, the Parties entered into that certain Research and Development Collaboration Agreement (the "**Original Research Agreement**") simultaneous with the Original License Agreement on the Original Effective Date, which Original Research Agreement was amended and restated as of the First Restatement Date pursuant to that certain Amended and Restated Research and Development Collaboration Agreement and was subsequently amended on December 15, 2017, April 24, 2018 and May 9, 2018 (as so amended, the "**First Restated Research Agreement**"), and the First Restated Research Agreement is being amended and restated in its entirety pursuant to that certain Second Amended and Restated Research and Development Collaboration Agreement simultaneously with entering into this Second Restated Agreement (the "**Second Restated Research Agreement**").

NOW, THEREFORE, in consideration of the foregoing and the covenants and promises contained in this Agreement, and intending to be legally bound, the parties agree as follows:

1. **DEFINITIONS**

As used in this Agreement, the following terms, whether used in the singular or plural, shall have the following meanings:

1.1 "**[*] Technology**" shall have the meaning given in Section 2.4(a).

1.2 "**Additional License**" shall have the meaning given in Section 4.4.

1.3 "**Additional License Payments**" shall have the meaning given in Section 4.4.

1.4 "**Additional Party**" shall have the meaning given in Section 4.4.

1.5 "**Affiliate**" of a Party means any entity which, directly or indirectly, controls such Party, is Controlled by such Party or is under common Control with such Party. For purposes of the Affiliate definition, "**Control**" means: (a) having the actual, present capacity to elect a majority of

the directors of such affiliate; (b) having the power to direct at least fifty percent (50%) of the voting rights entitled to elect directors; or (c) in any country where the local law will not permit foreign equity participation of a majority, ownership or control, directly or indirectly, of the maximum percentage of such outstanding stock or voting rights permitted by local law.

1.6 "**Agreement**" means the First Restated Agreement as in effect from the Original Effective Date until the Execution Date, together with this Second Restated Research Agreement which pursuant to Section 23.5 replaces the First Restated Agreement as of the Execution Date.

1.7 "**Allogeneic CTL**" means CTLs derived from cells obtained from one individual subject and treated, modified, manipulated or otherwise altered for the purposes of delivery to a second, genetically distinct individual subject.

1.8 "**Allogeneic CTL Product**" means a CTL Product or a New CTL Product derived from or incorporating Allogeneic CTLs.

1.9 "**Autologous CTL**" means CTLs derived from cells obtained from one individual subject and treated, modified, manipulated or otherwise altered for the purposes of delivery back to the same individual subject.

1.10 "**Autologous CTL Product**" means a CTL Product or a New CTL Product derived from or incorporating Autologous CTLs.

1.11 "**Background IP**" means all intellectual property rights (a) Controlled by a Party prior to the Original Effective Date or (b) Controlled by such Party during the Term, but not generated in the performance of the activities contemplated under this Agreement or the Research Agreement.

1.12 "**Base Patent Rights**" shall have the meaning given in Section 13.2(a).

1.13 "**[*]**" shall have the meaning given in Section 4.4.

1.14 "**Billion**" means one thousand million.

1.15 "**BKV/JCV Issue Fee**" shall have the meaning given in Section 4.1(b).

1.16 "**BKV/JCV-Specific CTL Product**" means a pharmaceutical or biologic product comprising Autologous CTLs or Allogeneic CTLs, in either case, Specifically Directed to [*] associated with BK Polyomavirus ("**BKV**") and/or JC Polyomavirus ("**JCV**"), including [*] BKV and/ or JCV or [*] with BKV and/or JCV.

1.17 "**Calendar Quarter**" means each successive period of three (3) consecutive calendar months ending on the last day of March, June, September, or December, respectively; provided that, the final Calendar Quarter shall end on the last day of the Term.

1.18 "**CMO** shall have the meaning given in Section 6.1(a).

1.19 "**CMV**" means human cytomegalovirus and any naturally occurring variants thereof.

1.20 "**CMV-Specific CTL Product**" means any pharmaceutical or biologic product comprising CTLs Specifically Directed to one or more Targets associated with CMV, including any epitopes associated with CMV or expressed by a cell infected with CMV.

1.21 "**CMV [*]**" means any [*], in whole or in part, or in any form, with or without [*], and in any formulation, including without limitation any such [*] that is also a [*], for use for (a) [*], or any [*] infected with CMV, or (b) [*] CMV, or any epitopes associated with CMV or expressed by a cell infected with CMV, or the expression of CMV, in each case of (a) and (b), [*]).

1.22 "**CMV [*] Program**" shall have the meaning given in Section 2.6(a).

1.23 "**Commercially Reasonable Efforts**" means, with respect to the efforts to be expended by a Party or its Affiliate with respect to any objective, activity or decision to be undertaken under this Agreement, those efforts that a well-resourced and financially stable company developing technology within the bio-pharmaceutical industry of comparable size and resources would reasonably use to accomplish such objective, activity or decision under similar circumstances, and specifically means the carrying out of development activities using efforts that a company developing technology within the bio-pharmaceutical industry of comparable size and resources would reasonably devote to a product at a similar stage in its development or commercial product life and of similar market potential, taking into consideration, among other factors, Third Party costs and expenses, including the royalties, milestone and other payments payable to Third Party licensors of patent or other intellectual property rights, and the pricing and reimbursement relating to the product, based on conditions then prevailing, 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, and the likelihood of regulatory approval given the regulatory structure involved. Commercially Reasonable Efforts shall be determined on a Major Market-by-Major Market and Indication-by-Indication basis for Licensed Products being developed under the Research Agreement, and it is anticipated that the level of effort will change over time, reflecting changes in the status of each such Licensed Product, and the market(s) or country(ies) involved. Commercially Reasonable Efforts [*], that the Party [*]. For clarity, Commercially Reasonable Efforts will not mean that a Party guarantees that it will actually accomplish the applicable task or objective.

1.24 "**Comparable Third Party Product**" means, on a Licensed Product-by-Licensed Product basis, and a country-by-country basis, any pharmaceutical or biological product (a) that contains (i) an identical active ingredient(s) as a Licensed Product, or (ii) a "highly similar" active ingredient(s) as such Licensed Product, as the phrase "highly similar" is used in 42 U.S.C. § 262(i)(2), and subject to the factors set forth in FDA's Guidance for Industry, "Quality Considerations in Demonstrating Biosimilarity to a Reference Protein Product," (February 2012), at Section VI, and any successor FDA guidance thereto, (b) for which Regulatory Approval is obtained by reference to Regulatory Materials of such Licensed Product, (c) is approved for use in such country pursuant to a Regulatory Approval process governing approval of interchangeable or biosimilar biologics as described in 42 U.S.C. §§ 262, or an equivalent process for Regulatory Approval in any country outside the United States, or any other equivalent provision that comes into force, or is the subject of a notice with respect to such Licensed Product under 42 U.S.C. § 262(l)(2) or any other equivalent provision that comes into force in such country, and (d) is sold in the same country as such Licensed Product by any Third Party that is not a Sublicensee of Licensee or its Affiliates and did not purchase such product in a chain of distribution that included any of Licensee or any of its Affiliates or its Sublicensees.

1.25 "**Competing Product**" means any CTL Product that is listed on Schedule 1.26. For clarity, any [*] shall be a Competing Product and (a) shall be subject to Section 2.6 during the [*] Option Period, and to Section 2.4 if the [*] expires without Licensee [*], and (b) if the [*] for the [*] shall automatically be added to Schedule 1.26 upon the exercise of the [*].

1.26 **"Confidential Information"** of a Party, means (a) information relating to the business, operations or products of a Party or any Affiliate of such Party, including any know-how, that such Party discloses, transfers or makes available to the other Party under this Agreement or the Research Agreement, or which otherwise becomes known to the other Party by virtue of this Agreement or the Research Agreement, in each case whether in written, oral, graphical, machine readable or other form, whether or not marked as confidential or proprietary, and (b) the terms of this Agreement and the Research Agreement;

1.27 "**Control**", "**Controls**" or "**Controlled**" means, with respect to any intellectual property rights or Confidential Information, the ability of a Party, itself or through an Affiliate of such Party, (whether through ownership or license (other than a license granted in this Agreement or the Research Agreement, as applicable) to grant to the other Party and/or its Affiliates, as applicable, the licenses or sublicenses as provided herein, or to otherwise disclose such intellectual property rights or Confidential Information to the other Party without violating the terms of any then-existing agreement with any Third Party or misappropriating such intellectual property rights or Confidential Information.

1.28 "**CTL**" shall have the meaning given in the first Recital.

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1.29 "**CTL Product**" means a pharmaceutical or biologic product comprising Autologous CTLs or Allogeneic CTLs, in either case, Specifically Directed to one or more Targets associated with EBV, including [*] associated with EBV or expressed by a cell infected with EBV (an "**EBV-Specific CTL Product**"), including without limitation any [*] to two or more of any of the foregoing Targets.

1.30 "**CTL Technology**" means proprietary rights Controlled by Institute with respect to information, know-how, concepts, ideas, techniques and data that relate to Allogeneic CTLs and/or Autologous CTLs, including methods of manufacture or use of such Allogeneic CTLs and/or Autologous CTLs.

1.31 "**Data Exclusivity Protection**" means in a particular country with respect to a Licensed Product, any Law that prevents (notwithstanding any exceptions or provisos, save to the extent that such exceptions or provisos may be applied in the particular case) the use of, or reliance upon, clinical data generated by Licensee (or its Affiliate or Sublicensee) by a Third Party to obtain regulatory approval for a product, where such Third Party has not obtained the rights to market or sell such product as a licensee, sublicensee or distributor of Licensee or any of its Affiliates, licensees or Sublicensees with respect to such product.

1.32 "**Designated Executive Officers**" means the Chief Executive Officer of Licensee and the Director and Chief Executive Officer of Institute or such other senior executive officer of either Party notified in writing by such Party to the other Party from time to time.

1.33 "**Development Plan**" means the development plan provided by Licensee to Institute that provides the activities, and the associated estimated timelines of when such activities shall be conducted (including in detail the activities that shall be conducted in the calendar year following the submission of such Development Plan to Institute), in order to develop Licensed Products for commercialization.

1.34 "**Diagnostic Product**" means any test or assay for diagnosing or detecting a disease, disorder, medical condition, or symptom.

1.35 "**Dispute**" shall have the meaning given in Section 20.1.

1.36 "**Earned Royalty**" has the meaning set forth in Section 4.6.

1.37 "**EBV**" means Epstein-Barr Virus, also known as human herpes virus 4 and any naturally occurring variants thereof.

1.38 "**EBV Autologous Option**" shall have the meaning given in Section 2.2(a).

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

1.39 "**EBV-Specific Autologous Products**" shall have the meaning given in Section 2.2(a).

1.40 "**EBV [*]**" means any [*], in whole or in part, or in any form, with or without [*] and in any formulation, including without limitation any such [*] that is also a [*], for use for (a) [*] EBV, or any [*] associated with EBV or [*] with EBV, or (b) [*] EBV, or any [*] EBV, in each case or (a) or (b), [*] .

1.41 "**EBV [*] Program**" shall have the meaning given in Section 2.6(a).

1.42 "**Existing Confidentiality Agreement**" shall have the meaning given in Section 22.2.

1.43 "**First Commercial Sale**" means, on a country-by-country basis, the first Sale of Licensed Product in such country to a Third Party by the Licensee, or any of its Affiliates or Sublicensees, in each case after all Regulatory Approvals have been obtained in such country, if applicable.

1.44 "**First Patient First Dose**" or "**FPFD**" means the first dosing of the first patient in a clinical trial.

1.45 "**Governmental Authority**" means any court, agency, department, bureau, commissions, council, or other entity or instrumentality of any supra-national, federal, national, regional, state, provincial, or local or other political subdivision.

1.46 "**HPV-Specific CTL Product**" means a pharmaceutical or biologic product comprising Autologous CTLs or Allogeneic CTLs, in either case, Specifically Directed to one or more Targets associated with human papilloma virus ("**HPV**"), including [*] associated with HPV or [*] with HPV.

1.47 "**Indemnitee**" shall have the meaning given in Section 15. 3.

1.48 "**Indication**" means any disease or condition, or sign or symptom of a disease or condition.

1.49 "**Infringement Notice**" shall have the meaning given in Section 14.1.

1.50 "**[*]**" shall have the meaning given in Section 4.4.

1.51 "**Institute Indemnitees**" shall have the meaning given in Section 15.1.

1.52 "**Issue Fee**" shall have the meaning given in Section 4.1(a).

1.53 "**JSC**" means the joint steering committee established pursuant to Article 3 of the Research Agreement.

1.54 "**Know-How Rights**" means the know-how and any supplemental information, including concepts, ideas, sequences, formulas, protocols, procedures, techniques and data (a) Controlled by Institute as of the Execution Date (including any of the foregoing Controlled by Institute as of the Original Effective Date and/or First Restatement Date), or (b) Controlled by Institute at any time during the Term and arising [*], or (c) Controlled by Institute and arising from activities conducted by either Party pursuant to the Research Agreement, in each case of (a) through (c), that (i) covers or relates to CTL Technology; and (ii) is not covered by a Valid Claim of the Patent Rights, or, if the subject of a patent or patent application in Patent Rights, does not issue as a Valid Claim.

1.55 "**Law**" or "**Laws**" means all applicable laws, statutes, rules, regulations, ordinances and other pronouncements having the binding effect of law of any Governmental Authority.

1.56 "**Licensed Field**" means therapeutic, palliative, prophylactic and diagnostic (including in relation to companion diagnostics) uses in all diseases and conditions and for all indications.

1.57 "**Licensed Method**" means any process, art or method the use or practice of which, but for the license granted in this Agreement, would infringe, or contribute to, or induce the infringement of, any Patent Rights in any country were they issued at the time of the infringing activity in that country.

1.58 "**Licensed Product(s)**" means any (a) CTL Product or New CTL Product or Program [*], including, without limitation, a CTL Product or New CTL Product or Program [*] for use or used in practicing a Licensed Method and any product made by practicing a Licensed Method, (b) a Diagnostic Product sold for use in connection with a CTL Product or New CTL Product or Program [*], or (c) any services provided using a CTL Product or New CTL Product or Program [*] set forth in (a), in each case of (a), (b) or (c) , where the manufacture, use, Sale, offer for Sale or import of which in a given country, (i) but for the license granted in this Agreement, would infringe, or contribute to, or induce the infringement of a Valid Claim of any Patent Rights in such country, (ii) would infringe, or contribute to, or induce the infringement of a Valid Claim of any Licensee Patents in such country, and/or (iii) would utilize the Know-How Rights. For clarity, Licensed Products include Allogeneic CTL Products and Autologous CTL Products, but subject to Section 2.6, do not include [*] unless and until Licensee [*].

1.59 "**Licensee Indemnitees**" shall have the meaning given in Section 15.2.

1.60 "**Licensee Patents**" means any and all patents or patent applications Controlled by Licensee that cover or claim inventions created, discovered, conceived, developed or reduced to practice in the course of activities conducted pursuant to the Research Agreement, including the following forms of intellectual property rights anywhere in the world that fall within the foregoing: (a) issued patents, continuations, continuations-in-part, divisionals, substitutions, confirmations, reissues, re-examination, validations, extensions, renewals, restorations or any similar governmental grant for protection of inventions; (b) pending applications for any of the foregoing (including both provisional and non-provisional applications); and (c) all patents and patent applications claiming priority directly or indirectly to any of the foregoing, or from which any of the foregoing claim direct or indirect priority, in each case including any joint interest in such rights held jointly with Institute.

1.61 "**Licensee [*] Development Plan**" shall have the meaning given in Section 5.2.

1.62 "**Major Markets**" means (a) the United States, and (b) [*] the following countries: France, United Kingdom, Italy, Germany and Spain.

1.63 "**Manufacturing Agreement**" shall have the meaning given in Section 6.1.

1.64 "**Milestone**" shall have the meaning given in Section 4.3(a).

1.65 "**Milestone Payment**" shall have the meaning given in Section 4.3(a).

1.66 "**MSK Agreement**" means the exclusive license agreement dated June 12, 2015, by and between Licensee and Memorial Sloan Kettering Cancer Center.

1.67 "**Net Sale**" means the amount invoiced by Licensee or by any Affiliate or Sublicensee for Sales of Licensed Products, after deduction of the following in accordance with U.S. Generally Accepted Accounting Principles ("**GAAP**") to the extent applicable to such Sales:

(a) trade, quantity and cash discounts or rebates, actually allowed or taken;

(b) allowances or credits given for rejection, recall or return of previously sold Licensed Product or outdated Licensed Product;

(c) rebates and chargebacks or retroactive price reductions made to federal, state or local governments (or their agencies), or any Third Party payor, administrator or contractor, including managed health organizations, to the extent specific to Licensed Product;

(d) payments required by law to be made under special medical assistance programs (including, but not limited to, payments made under Medicaid, Medicare or other government and other similar programs such as the new "Medicare Part D Coverage Gap Discount Program" and the "Annual Fee on Branded Pharmaceutical Manufacturers"), in each case to the extent specific to Licensed Product;

(e) amounts deemed to be uncollectible due to non-payment relating to Sales of Licensed Products during the applicable calculation period;

(f) any tax or other governmental charge (including without limitation custom surcharges) borne by and not reimbursed to the Licensee other than income tax levied on the Sale, transportation or delivery of Licensed Product; and

(g) any charges for packing, handling, freight, insurance, transportation and duty charges borne by the seller.

If Licensee makes any Net Sales to any Person at a price less than the regular price charged to other parties, and unless a cash discount within the meaning of this Section 1.67 applies, the royalties payable to Institute shall be computed on the basis of the regular price charged to other parties.

1.68 "**New CTL Products**" shall mean, for the purposes of this Agreement, pharmaceutical or biologic products comprising Autologous CTLs or Allogeneic CTLs Specifically Directed to Targets (including [*] associated with such Target or [*] with such Target) that are associated with any New Research Program that the Parties have agreed to include within the scope of this Agreement pursuant to Section 2.3 of the Research Agreement, including [*] the Target of such New Research Program. As of the Execution Date, New CTL Products shall include (i) HPV-Specific CTL Products and (ii) BKV/JCV-Specific CTL Products.

1.69 "**New Research Program**" shall have the meaning given in the Research Agreement.

1.70 "**New Research Patent Rights**" shall have the meaning given in Section 13.2(b).

1.71 "**New Research Program Inclusion Date**" shall have the meaning given in Section 13.2(b).

1.72 "**Option**" shall have the meaning given in Section 2.2(a).

1.73 "**Option Notice**" shall have the meaning given in Section 2.2(a).

1.74 "**Original Effective Date**" shall have the meaning given in the Recitals.

1.75 "**Original License Agreement**" shall have the meaning given in the Recitals.

1.76 "**Orphan Drug Exclusivity**" means in a particular country with respect to a Licensed Product, protection available under any Applicable Law relating to treatments for rare or neglected diseases or conditions, or otherwise requiring special incentives, that prevents or delays (notwithstanding any exceptions or provisos, save to the extent that such exceptions or provisos may be applied in the particular case) the approval, production, marketing or sale of a competitive product by a Third Party, where such Third Party has not obtained the rights to market or sell such product as a licensee, sublicensee or distributor of Licensee or any of its Affiliates, licensees or Sublicensees with respect to such product.

1.77 "**Participant**" means any one or more of:

[*]

1.78 "**Patent Rights**" means (a) any and all patents and patent applications Controlled by Institute as of the Execution Date (including all such patents and patent applications Controlled by Institute as of the Original Effective Date and/or the First Restatement Date) that cover or claim CTL Technology and have arisen directly from activities conducted by or under the supervision of [*], including the patents and patent applications listed on Schedule 1.80, excluding any patents and patent applications included in subsection (b), (b) any and all patents or patent applications Controlled by Institute that cover or claim inventions created, discovered, conceived, developed or reduced to practice in the course of activities conducted pursuant to the Research Agreement, and (c) any and all patents and patent applications Controlled by Institute during the Term that have arisen directly from activities conducted by or under the supervision of [*] to the extent that such patents and patent applications cover or claim [*]. For clarity, Patent Rights include the following forms of intellectual property rights anywhere in the world that fall within (a), (b) and (c): issued patents, continuations, continuations-in-part, divisionals, substitutions, confirmations, reissues, re-examination, validations, extensions, renewals, restorations or any similar governmental grant for protection of inventions; (ii) pending applications for any of the foregoing (including both provisional and non-provisional applications); and (iii) all patents and patent applications claiming priority directly or indirectly to any of the foregoing, or from which any of the foregoing claim direct or indirect priority.

1.79 "**Person**" means any natural person, corporation, firm, business trust, joint venture, association, organization, company, partnership or other business entity, or any government or agency or political subdivision thereof.

1.80 "**Phase I Clinical Trial**" means any clinical study conducted on sufficient numbers of human subjects to establish that a pharmaceutical or biological product is reasonably safe for continued testing and to support its continued testing in Phase II Clinical Trials. "Phase I Clinical Trial" shall include without limitation any clinical trial that would satisfy requirements of 21 C.F.R. § 312.21(a).

1.81 "**Phase II Clinical Trial**" means any clinical study conducted on sufficient numbers of human subjects that have the targeted disease of interest to investigate the safety and efficacy of a pharmaceutical or biological product for its intended use and to define warnings, precautions, and adverse reactions that may be associated with such product in the dosage range to be prescribed. "Phase II Clinical Trial" shall include without limitation any clinical trial that would satisfy requirements of 21 C.F.R. § 312.21(b).

1.82 "**Phase III Clinical Trial**" means any clinical study intended as a pivotal study for purposes of seeking Regulatory Approval that is conducted on sufficient numbers of human subjects to establish that a pharmaceutical or biological product is safe and efficacious for its intended use, to define warnings, precautions, and adverse reactions that are associated with such product in the dosage range to be prescribed, and to support Regulatory Approval of such product or label expansion of such product. "Phase III Clinical Trial" shall include without limitation any clinical trial that would or does satisfy requirements of 21 C.F.R. § 312.21(c), whether or not it is designated a Phase III Clinical Trial.

1.83 "**Polyepitope CTL Product**" means any pharmaceutical or biologic product comprising an Autologous CTL or an Allogeneic CTL, in either case, that is Specifically Directed to at least two Targets.

1.84 "**Program [*]**" means any [*] developed in the course of the [*] Program, in respect of which Licensee has [*].

1.85 "**Regulatory Approval**" means with respect to a country or region, any and all approvals, licenses, registrations or authorizations of any Regulatory Authority necessary to commercially distribute, sell or market a Licensed Product in such country or region, including, where applicable: (a) pre- and post-approval marketing authorizations; (b) labeling approval; and (c) technical, medical and scientific licenses, in each case necessary for commercial distribution, sale or marketing of such Licensed Product in such country or region.

1.86 "**Regulatory Authority**" means any Government Authority or other entity, in each case regulating or otherwise exercising authority with respect to the development, manufacturing or commercialization of the Licensed Product in a given country or region, including the U.S. Food and Drug Administration ("**FDA**"), or any successor thereto, and the European Medicines Agency ("**EMA**"), or any successor thereto.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

1.87 "**Research Agreement**" means the First Restated Research Agreement as in effect from the Original Effective Date until the Execution Date, together with the Second Restated Research Agreement effective as of the Execution Date.

1.88 "**Research Agreement Patent Rights**" shall have the meaning given in Section 13.2(b).

1.89 "**Research Milestone Payments**" shall have the meaning given in the Research Agreement.

1.90 "**Reversion Product IP**" shall have the meaning given in Section 9.6(b).

1.91 "**Reversion Products**" shall have the meaning given in Section 9.6(b).

1.92 "**Royalty Term**" shall have the meaning given in Section 4.8(a).

1.93 "**Rules of Arbitration**" shall have the meaning given in Section 20.2.

1.94 "**Sale**" means the act of selling, leasing or otherwise transferring, providing, or furnishing for use any Licensed Product for any consideration. Correspondingly, "Sell" means to make or cause to be made a Sale, and "Sold" means to have made or caused to be made a Sale. For clarity, a Sale excludes any Licensed Product supplied at cost: (a) for use in clinical trials; (b) for research or for other noncommercial uses; or (c) as part of a compassionate use program (or similar program for providing Product before it has received marketing approval in a given country).

1.95 "**Specifically Directed**" means, with respect to a Target, the ability of a molecule, agent, or compound to selectively or preferentially bind to or interact with such Target (other than by non-specific binding).

1.96 "**Sublicensee**" means any person or entity (including any Affiliate of Licensee) to which any of the license rights granted to the Licensee hereunder are granted a sublicense or an option to a sublicense.

1.97 "**Target**" means an antigen expressed on or in a cell, including [*]. For clarity, a Target may be [*] (collectively, a single "Target"). Unless otherwise specified, where the antigen is naturally occurring, a Target [*]. For clarity, (a) where a Licensed Product is [*] antigen expressed on or in a cell in association with [*], EBV and/or the virus associated with the Target of any New CTL Product and/or Program [*], [*], and (b) where a Licensed Product is [*] associated with a [*] on or in a cell in association with the presence of, or infection of such cell by, EBV and/or the virus associated with the Target of any New CTL Product and/or Program [*], or [*] EBV and/or the virus associated with the Target of any New CTL Product and/or Program [*], [*].

1.98 "**Term**" shall have the meaning given in Section 9.1.

1.99 "**Territory**" means worldwide.

1.100 "**Third Party**" means any Person other than Institute, Licensee or any of their respective Affiliates.

1.101 "**Third Party License**" shall have the meaning given in Section 4.7.

1.102 "**Third Party Product**" shall have the meaning given in Section 7.2.

1.103 "**Third Party Royalty Payments**" shall have the meaning given in Section 4.7.

1.104 "**[*]**" shall have the meaning given in Section 4.4.

1.105 "**[*]**" means [*].

1.106 "**[*] FPFD Date**" shall have the meaning given in Section 5.2.

1.107 "**[*] Option**" shall have the meaning given in Section 2.6(a).

1.108 "**[*] Option Notice**" shall have the meaning given in Section 2.6(e).

1.109 "**[*] Option Period**" shall have the meaning given in Section 2.6(a).

1.110 "**[*] Program [*] Account**" shall have the meaning given in Section 2.6(c).

1.111 "**Valid Claim**" means any (a) claim in an issued and unexpired patent included in the Patent Rights that has not been disclaimed, abandoned or withdrawn and has not been held unenforceable or invalid by a final judgment of a court or other governmental agency of competent jurisdiction from which no appeal can be or is taken, and has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise; (b) claim in a pending patent application included within the Patent Rights that has been filed in good faith and has not been abandoned or finally disallowed without the possibility of appeal or refiling, which application has been pending for less than [*] after its priority date; or (c) claim in a pending patent application included within the Patent Rights, which application has been pending for more than [*] after its priority date and which later becomes a claim in an issued and unexpired patent included in the Patent Rights as described in subsection (a), provided that for clarity, such claim shall be a Valid Claim only during the time period during which it otherwise falls within subsections (a) or (b).

1.112 "**[*] License**" shall have the meaning given in Section 4.4.

1.113 "**[*]**" shall have the meaning given in Section 4.4.

2. **GRANT**

2.1 **License Grant**. Subject to the limitations and other terms and conditions set forth in this Agreement including those reserved by Institute in Section 2.5(a), Institute hereby grants to Licensee an exclusive, royalty-bearing, sublicenseable (in accordance with Article 3) license in, to and under (a) the Patent Rights and the Know-How Rights, and (b) Institute's interest in any patents and patent applications owned jointly by Licensee and Institute, to make, use, Sell, offer for Sale and import Licensed Products, and to practice Licensed Methods, in each case with respect to (i) Allogeneic CTL Products in the Territory in the Licensed Field, (ii) solely with respect to HPV-Specific CTL Products, BKV/JCV -Specific CTL Products and EBV-Specific Autologous Products, Autologous CTL Products in the Licensed Field, and (iii) solely following [*], [*] arising from the [*].

2.2 **Autologous CTL Option**.

(a) T he Parties hereby agree and acknowledge that Institute has granted to Licensee, and Licensee has exercised on written notice to Institute (the "**Option Notice** "), an option:

(1) to obtain an exclusive, royalty-bearing, sublicenseable (in accordance with Article 3) license in, to and under the Patent Rights and the Know-How Rights to make, use, Sell, offer for Sale and import Licensed Products, and to practice Licensed Methods, in each case with respect to Autologous CTL Products that are Specifically Directed to one or more Targets associated with EBV, including any [*] EBV or [*] with EBV (such products, "**EBV-Specific Autologous Products**"), in the Territory in the Licensed Field (such option, the "**EBV Autologous Option**" or the "**Option**").

(b) The Parties hereby agree and acknowledge that Licensee has paid the Option Fee to Institute pursuant to Section 4.2 and the license rights as described in Section 2.2(a)(1) , are fully effective, without further action either by Institute or by Licensee.

2.3 **Reversion of Certain Rights**. On a Target-by-Target basis, Major Market-by-Major Market basis, and Indication-by-Indication basis, if Licensee (a) ceases or determines that it will not pursue development or commercialization of an Allogeneic CTL Product for use in a given Indication under this Agreement or the Research Agreement, and (b) ceases or determines that it does not wish to pursue the development and commercialization of an Autologous CTL Product for use in such Indication, Section 7.3 shall apply.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

2.4 **[*] Technology**.

(a) Subject to the terms and conditions of this Agreement, and the Research Agreement, during the Term, Licensee shall have an [*] under any intellectual property rights (i) Controlled by Institute or any Affiliate of Institute not included in the Patent Rights or the Know-How Rights, (ii) [*], (iii) that [*] or to [*], and (iv) that either Party [*] for the Parties' activities under this Agreement or the Research Agreement (the "**[*] Technology**"). For clarity, this Section 2.4 shall not apply to any [*] Technology that relates solely to [*], which shall be subject to Section 2.6 during the [*] Period, provided that if the [*] Period expires without Licensee exercising the [*], this Section 2.4(a) shall continue to apply, but Institute shall have no obligation under this Section 2.4 with respect to any such [*] Technology that relates solely to [*] arising from the [*] Program.

(b) With respect to any [*] Technology, Institute shall provide Licensee, prior to any discussion with any Third Party, with (i) detailed information regarding such [*] Technology, including such additional information as is reasonably requested by Licensee regarding any such [*] Technology in order to enable Licensee to appropriately evaluate such [*] Technology, and (ii) [*] arising from the use of such [*] Technology in the Territory. Licensee shall have a period of [*] following receipt of [*] [*] to notify Institute whether Licensee wishes to exercise [*], and the Parties shall thereafter [*] to Licensee. If the Parties agree upon [*] in such period, they shall thereafter proceed to an [*] for such a grant of rights to be mutually agreed by the Parties. In the event that the Parties have not agreed upon the [*] pursuant to which the Parties would [*] in the Territory within such [*] period after the initiation of good faith discussions, Institute shall be free to discuss terms and conditions for the grant of rights, to develop and commercialize such CTL Products and/or New CTL Products in the Territory to any Third Party. Notwithstanding the foregoing, during [*] following the [*] Institute may [*] such a grant of rights with a Third Party, provided that Institute shall [*] Licensee during [*] (unless the Parties mutually agree to [*]), and provided further that [*], no [*] in the Territory shall be [*] such Third Party [*] with Licensee.

2.5 **Reservation of Rights**.

(a) Institute reserves and retains the right (and the exclusive rights granted to the Licensee in this Agreement shall be limited accordingly) to make, use and practice the Patent Rights and the Know-How Rights (and to grant any of the foregoing rights to other educational and non-profit institutions solely by way of a grant of rights pursuant to an academic collaboration agreement containing provisions substantially equivalent to those set forth in Schedule 2.5) entered into solely for educational and research purposes, including publication and other communication of any research results, but excluding any sponsored research performed for or on behalf of commercial entities, provided that any such rights granted under such academic collaboration agreements shall be subject to Sections 2.1, 2.4 and 11.2. Subject to the terms and conditions of this Agreement, Institute shall also retain all rights in and to the Patent Rights and the Know How Rights for (i) all applications

that do not directly relate to, or use or incorporate, CTLs, (ii) all uses or applications of CTLs for any Indication that is not associated with EBV and/or the Target associated with any New CTL Product and is not the subject of any activities being carried out under the Research Agreement, (iii) uses or applications of CTLs for use in any Indication for which an EBV-Specific CTL Product or a New CTL Product is being developed and/or commercialized pursuant to this Agreement or the Research Agreement, solely where such use or application of CTLs is in a patient or patients (A) that have been determined [*] (as applicable), and (B) that do not [*] associated with any [*] and/or the [*] associated with any [*] such uses or applications of CTLs, and (iv) [*], excluding any [*] included in the [*] Program, which shall be subject to Section 2.6, or any [*] that is also directed to the Target of any New Research Program.

(b) The Parties acknowledge and agree that Licensee retains the right to continue all development and commercialization activities under the MSK Agreement, including any development and commercialization of products that would be Competing Products, and Licensee's development and commercialization of products under the MSK Agreement shall not be a breach of Article 7.

(c) The Licensee acknowledges that the Institute has notified Licensee that Institute has, prior to the Original Effective Date, granted to each of the Participants an identical perpetual, irrevocable, nonexclusive royalty free license under the Patent Rights and related Know How but excluding [*], in each case solely for internal research purposes, with a right to sublicense solely for internal research purposes with Institute's prior written consent, on terms to be agreed between the Institute and Participant, provided that Institute is not permitted to unreasonably withhold its consent to such a sublicense. Institute agrees that it will (i) provide Licensee with prompt written notice of any request by a Participant prior to any grant of such a sublicense, (ii) use its best efforts to ensure any such sublicense complies with Section 2.5(a), and (iii) at Licensee's request, provide Licensee with a copy of any such sublicense, which may be redacted to the extent not necessary to demonstrate compliance with Section 2.5(a).

2.6 **[*] Program**.

(a) Institute has been pursuing as of the Execution Date, and proposes to continue to pursue during the Term, certain programs of research and development relating to the [*] (the "**[*] Program**") and/or the [*] [*] (the "**[*] Program**"). Subject to the remainder of this Section 2.6, Institute hereby grants to Licensee an [*] for the [*] Program (the "**[*]**"), exercisable at any time prior to the earlier of (i) the [*] arising out of the [*] Program, and (ii) the decision by Institute to [*] (the "**[*] Period**"), to include [*], arising from the [*] Program as Licensed Products pursuant to this Agreement. For the purposes of determining the duration of the [*] Period, [*] shall mean the [*]. The Parties acknowledge and agree that the [*] Option for the CMV [*] Program as described in the First Restated Agreement has terminated effective as of the Execution Date and that the CMV [*] Program (and Licensee's obligation to fund the CMV [*] Program) will continue solely as expressly set forth in the Second Restated Research Agreement.

(b) In order to retain the right to [*] during the [*], Licensee shall [*] commencing on the Execution Date and during the remainder of the [*] Period in the form of the [*] Contribution, in accordance with a mutually agreed [*] Programs Development Plan and [*] Program Budget, as set forth in Section 2.6(e) and (f) of the Research Agreement. Licensee may terminate the [*] at any time during the [*] Period by [*] written notice to Institute. Following notice of termination of the [*], Licensee shall remain responsible for [*] for activities that are [*] for which the [*] has been terminated during such termination notice period, provided that [*] by Institute during the termination notice period. Licensee shall also be responsible for [*] associated with the termination of the [*] , if any. For clarity, any failure by Licensee to pay the [*] Contribution (unless disputed in good faith by Licensee) within the timeframe set forth in Section 2.6(d) [*] and upon written notice from Institute to Licensee shall [*] for the [*] Program.

(c) The [*] Contribution shall be payable by Licensee as follows: (i) no later than [*] during the [*] Period, Institute will present to Licensee an [*] that Institute [*] during that [*] (the "**[*] Program [*] Account**"); (ii) provided that the amount of the [*] Program [*] Account does not exceed [*] of the amounts set forth in the [*] Budget, Licensee shall, pay the amounts set forth in the [*] Program [*] Account within [*] of receipt of such account. Any amounts paid towards the [*] Contribution shall be [*] made or payable by Licensee under this Agreement, provided that any [*] set forth in the [*] Program [*] Account will be adjusted in subsequent [*] Program [*] Accounts against actual costs and committed costs incurred by Institute in conducting the [*] Program.

(d) If Licensee fails to make a payment of any undisputed amount included within the [*] Program [*] Account within thirty (30) days following the due date Licensee's right to exercise the [*] with respect to the [*] Program shall terminate. Licensee may dispute any amount charged in good faith by written notice to Institute, and the Parties shall promptly meet following any such notice to discuss and resolve any such dispute in good faith.

(e) Licensee may exercise the [*] by giving written notice to Institute at any time during the [*] Period (the "**[*] Notice**") and paying the [*] Fee in accordance with Section 4.2(b). Upon receipt of the [*] Option Notice and the [*] Fee, [*], arising from the [*] Program will be included as Licensed Products pursuant to this Agreement, and the [*] Program shall thereafter be subject to the terms and conditions of this Agreement, including the milestone payments due under Section 4.3, and the royalty obligations set forth in Section 4.6 set forth in the column entitled "Licensed Product that is a Program [*] Arising from the [*] Program" in the table in such Section, that are applicable to Licensed Products arising from the [*].

(f) If Licensee does not exercise a [*] for the [*] Program during the [*] Period, or if the [*] is terminated by Licensee pursuant to Section 2.6(b), then subject to the rights granted to Licensee under this Agreement, including the licenses granted in Section 2.1, and to subsection (g) below, all rights of Licensee under the [*] Program for which the [*] has not been exercised (or for which the [*] has been terminated, as applicable) shall terminate, and Institute shall thereafter have no further obligations to Licensee with respect to the [*] Program.

(g) Notwithstanding subsection (f), following either (i) the expiration of the [*] Period without exercise of the [*] by Licensee for the [*] Program, (ii) termination by Licensee of the [*] for the [*] Program or (iii) at any time with respect to the [*] Program, as set forth below, if Institute grants rights to any Third Party to develop or commercialize any product (including any [*]) arising from the [*] Program, Institute shall [*] under any agreement for the grant of such rights, until [*] with respect to the [*] Program for which rights have been granted to such Third Party and (ii) with respect to the [*]. For clarity, Licensee may terminate the [*] Option by (A) the giving of [*] written notice to Institute in accordance with Section 2.6(b), or (B) written notice in the event of (1) any issue relating to the safety or efficacy of the [*], or (2) [*] applicable to the development and commercialization of the [*], or (3) [*].

(h) For the purposes of this Section 2.6, "**[*] Development Costs**" shall mean the [*] costs incurred ([*]) by Institute in conducting the [*] Program, provided that (i) [*] Development Costs shall also include [*] Program) associated with the [*] [*] Program, which shall be mutually agree by the Parties and set forth in the [*] Budget, and (ii) [*] set forth in the Research Agreement.

2.7 **No Other Rights**. Each Party acknowledges that the rights and licenses granted in this Agreement are limited to the scope expressly granted. Accordingly, except for the rights expressly granted under this Agreement, no right, title, or interest of any nature whatsoever is granted whether by implication, estoppel, reliance, or otherwise, by either Party to the other Party. All rights with respect to any know-how, patent or other intellectual property rights that are not specifically granted herein are reserved to the owner thereof.

3. SUBLICENSES

3.1 **Permitted Sublicensing**. Institute grants to the Licensee the right to sublicense, in whole or in part, as follows: (a) Licensee shall have the right to sublicense the Patent Rights and the Know-How Rights within the Territory in the Licensed Field solely to Licensee's Affiliates and subcontractors performing work on behalf of Licensee; and (b) Licensee shall have the right to sublicense the right to make, use, sell, offer for sale and import Licensed Products within the Territory in the Licensed Field through multiple tiers. The term Sublicense shall include any grant of rights under this Agreement by a Sublicensee to any downstream Third Party, such downstream Third Party shall also be considered a Sublicensee for purposes of this Agreement.

3.2 **Sublicense Requirements**. The Licensee shall (a) provide Institute with a copy of each sublicense issued within thirty (30) days after the execution of such sublicense; (b) collect payment of all payments due to Institute from Sublicensees through Licensee arising from Sales of Licensed Products; and (c) summarize and deliver all reports due Institute from Sublicensees through Licensee.

3.3 **Sublicense Terms**. Each Sublicensee must be subject to a written sublicense agreement containing all terms of the sublicense, which shall include at least the following terms and conditions:

(a) record keeping, audit and reporting obligations substantially equivalent to those set forth in Sections 8.1 and 8.2 of this Agreement, sufficient to enable Licensee and Institute to reasonably verify the payments due to Licensee and Institute under such Sublicense and to reasonably monitor such Sublicensee's progress in developing and/or commercializing Licensed Product, including the right for Institute (or its designee) to perform a direct audit of Sublicensee's books and records on terms no less stringent than those set forth in Section 8.2 of this Agreement;

(b) infringement and enforcement provisions that do not conflict with the restrictions and procedural requirements imposed on Licensee and do not provide greater rights to Sublicensee than as provided in Article 14;

(c) confidentiality provisions with respect to Confidential Information of Institute consistent with the restrictions on Licensee in Article 22 of this Agreement;

(d) a requirement of indemnification of Institute by Sublicensee that is equivalent to the indemnification of Institute by Licensee under Section 15.1 of this Agreement; and

(e) a requirement of obtaining and maintaining insurance by Sublicensee that is equivalent to the insurance requirements of Licensee under Section 15.4 of this Agreement.

Any Sublicense that does not include all of the terms and conditions set forth in this Section 3.3 or which is not issued in accordance with the terms and conditions set forth in this Article 3, shall be considered null and void with no further notice from Institute.

3.4 **Effect of License Termination**. Upon termination of this Agreement for any reason, all sublicenses that are granted by Licensee pursuant to this Agreement will remain in effect and will be assigned to Institute, provided that the Sublicensee is in compliance with its sublicense agreement as of the date of such termination, and except that Institute will not be bound to perform any duties or obligations set forth in any sublicenses that extend beyond the duties and obligations of Institute set forth in this Agreement. Institute will have the sole right to modify each such assigned sublicense to include all of the rights of Institute that are contained in this Agreement.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

4. FINANCIAL PROVISIONS

4.1 **Issue Fee**.

(a) As initial payment for the rights received under this Agreement with respect to CTL Products, Licensee paid to Institute a fixed fee of three million dollars ($3,000,000) (the "**Issue Fee**") within fifteen (15) business days following the Original Effective Date. The Issue Fee is non-refundable and non-creditable against any other amounts, including but not limited to, Earned Royalties due to Institute by Licensee. The Issue Fee is in no way contingent on use or productivity of Patent Rights and Know-How Rights provided by Institute.

(b) As initial payment for the rights received under this Agreement with respect to BKV/JCV-Specific CTL Products, Licensee paid to Institute a fixed fee of [*] (the "**BKV/JCV Issue Fee**") within fifteen (15) business days following the First Restatement Date. The BKV/JCV Issue Fee is non-refundable and non-creditable against any other amounts, including but not limited to, Earned Royalties due to Institute by Licensee. The BKV/JCV Issue Fee is in no way contingent on use or productivity of Patent Rights and Know-How Rights provided by Institute.

4.2 **Option Fees**.

(a) Each Party acknowledges that Licensee has previously delivered an Option Notice for the EBV Autologous Option and has paid to Institute a fee of [*] (the "**Option Fee** "). The Option Fee is nonrefundable and non-creditable against any other amounts once paid and is not in any way contingent on use or productivity of the underlying technology and know-how related to the EBV Autologous Option.

(b) Within ten (10) days following Licensee's delivery of a [*] Notice for the [*] Program, Licensee shall pay to Institute a fee of [*] (the "**[*] Fee** "). The [*] Fee is non-refundable and non-creditable against any other amounts once paid and is not in any way contingent on use or productivity of the underlying technology and know-how related to the [*] Program.

4.3 **Milestone Payments**.

(a) As additional consideration for Institute entering into this Agreement and the Research Agreement, Licensee will pay to Institute the milestone payments (each, a "**Milestone Payment**") set forth in the table below for each Allogeneic Licensed Product and/or Autologous Licensed Product (as applicable pursuant to the table set forth below) to achieve the corresponding milestone (each, a "**Milestone**"), whether achieved by Licensee or an Affiliate or Sublicensee. Licensee shall promptly notify Institute in writing of the achievement of any such Milestone and Licensee shall pay Institute in full the corresponding Milestone Payment within [*] of such achievement. For clarity, each Milestone Payment is payable once only for each Allogeneic CTL Product and once for each Autologous CTL Product, and each Milestone Payment is non-refundable, and is not an advance against royalties due to Institute or any other amounts due to Institute.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

	Milestone Trigger Event	Milestone Payment		
		Licensed Product Specifically Directed to [*]	**Licensed Product Arising [*] Activities under Research Agreement**	**[*]**
1	First calendar year in which worldwide annual Net Sales of Product [*]	[*]	[*]	[*]
2	First calendar year in which annual Net Sales of Product [*]	[*]	[*]	[*]
3	First calendar year in which annual Net Sales of Product [*]	[*]	[*]	[*]

(b) Unless a Milestone Payment is specified as payable for more than one Indication in the table above, each Milestone Payment will be payable by Licensee only once, following the first time a given Licensed Product achieves the specified Milestone, for each Allogeneic CTL Product and each Autologous CTL Product to achieve such Milestone.

(c) Each time a Milestone is achieved, then any other Milestone Payments with respect to earlier Milestones that have not yet been paid will be due and payable together with the Milestone Payment for the Milestone that is actually achieved.

(d) If Licensee, with respect to a given Licensed Product and a given Indication, elects to progress the development and commercialization of an Autologous CTL Product in lieu of an Allogeneic CTL Product for such Indication, then (i) following the decision to progress development and commercialization of such Autologous CTL Product, Licensee shall owe all subsequent Milestone Payments due for such Autologous CTL Product, and (ii) subsection (c) shall apply solely with respect to any Milestone Payments that are applicable to both Autologous CTL Products and Allogeneic CTL Products, and have not already been paid for the Allogeneic CTL Product.

4.4 **Milestone Offset**. If Licensee reasonably believes, on the advice of legal counsel, that it is necessary to obtain a license (or a sublicense) from any Third Party under (a) any patents or patent applications owned or otherwise controlled by a Third Party that claim or cover the [*], including without limitation any specific constructs or variants of such [*], wherever originating, including without limitation any such patents or patent applications owned or otherwise controlled by [*] and/or the [*] (the "**[*]**"), and/or (b) any patents or patent applications having a priority date [*] owned or otherwise controlled by any [*] in order to develop, make, have made, use, Sell, offer for Sale or import any Licensed Product (such licenses, each an "**Additional License**"), and pursuant to such Additional License is required to pay any consideration ([*]) to such Additional Party for development and commercialization of such Licensed Product ("**Additional License Payments**"), then Licensee may offset [*] paid to such Additional Party against [*] payable to Institute under this Agreement or [*] payable to Institute under [*] under this Agreement in relation to such Licensed Product or [*] in relation to such Licensed Product after the effective date of such Additional License, [*], provided that Licensee may not offset any Additional License Payments due under the [*] for all Licensed Products in aggregate (the "**[*]** "). For clarity, Licensee's right to offset Additional License Payments under any Additional License falling within (b) shall be subject to [*]. Notwithstanding the foregoing, in no event shall the offset of Additional License Payments exceed [*], as applicable, and [*] due to Institute under this Agreement and the Research Agreement. Any Additional License Payments ([*] in excess of such [*] may be [*] by Licensee and [*], provided that no offset may be taken by Licensee against [*] prior to the effective date of such Additional License.

4.5 **Royalties**. Subject to Section 4.4, Earned Royalties will accrue on a Licensed Product-by-Licensed Product basis and country-by-country basis, for the duration of the Royalty Term and will be payable to Institute when Licensed Products are invoiced, or if not invoiced, when delivered or otherwise exploited by the Licensee, its Affiliate or Sublicensee in a manner constituting a Sale.

4.6 **Earned Royalty**. As further consideration for the rights granted under this Agreement and activities agreed under this Agreement and the Research Agreement, Licensee will pay to Institute the following earned non-refundable, non-creditable royalty on Net Sales of Licensed Products ("**Earned Royalty**"):

	Royalty Percent		
Aggregate Annual Net Sales	**[*] CTL Products**	**Licensed Products Arising [*] under the Research Agreement**	**Licensed Product that is a [*] Program**
Portion less than [*]	[*]	[*]	[*]
Portion greater than or equal to [*]	[*]	[*]	[*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Notwithstanding the foregoing, for any Licensed Product that is a Diagnostic Product, the Earned Royalty shall be [*] of the royalty rates set forth in the table above.

4.7 **Royalty Offset**. If Licensee [*], that it is necessary to obtain a license under patents or patent applications Controlled by a Third Party (a "**Third Party License**") in order to develop, make, have made, use, Sell, offer for Sale or import any Licensed Product, and pursuant to such Third Party License is required to pay royalties to such Third Party ("**Third Party Royalty Payments**"), then Licensee may deduct [*] of all royalties paid to such Third Party against the Earned Royalty owed to Institute, up to a limit of [*] of the applicable Earned Royalty in any given calendar year. Any Third Party [*] Payments in excess of such [*] limit for a given calendar year [*].

4.8 **Royalty Term**.

(a) Subject to the remainder of this Section 4.8, the Earned Royalty will be payable, on a Licensed Product-by-Licensed Product basis, and on a country-by-country basis, from the date of First Commercial Sale of such Licensed Product in such country until the last to occur of the following: (i) expiration or abandonment of the last Valid Claim of (A) any of the Patent Rights existing as of the Original Effective Date that cover or claim [*] such Licensed Product in such country, (B) any patent or patent application included in the Patent Rights following the Original Effective Date that arises as a result of the Parties' activities conducted pursuant to the Research Agreement, or (C) any [*]; (ii) cessation of any Data Exclusivity Protection or Orphan Drug Exclusivity applicable to such Licensed Product in such country; or (iii) the tenth (10th) anniversary of the First Commercial Sale of such Licensed Product in such country (the "**Royalty Term**").

(b) Notwithstanding the foregoing, if in a country, (i) neither of the events set forth in Section 4.8(a)(i) and/or Section 4.8(a)(ii) have occurred in relation to such Licensed Product, (ii) one or more Comparable Third Party Products for such Licensed Product have been sold in such country for a period of [*], (iii) such Comparable Third Party Products do not infringe any Valid Claim of the [*], Licensee is [*], and (iii) following such [*] period, Net Sales during [*] Calendar Quarters in such country are [*] for the [*] Calendar Quarters, the Earned Royalty will be reduced thereafter to [*] of the amounts set forth in the table in Section 4.6 above (following any offsets applicable under Section 4.7). Furthermore, if in a country, at any time prior to the [*] anniversary of the First Commercial Sale of such Licensed Product, [*] set forth in Section 4.8(a)(i) and/or Section 4.8(a)(ii) have occurred in relation to such Licensed Product, the Earned Royalty will be reduced thereafter to [*] of the amounts set forth in the table in Section 4.6 above (following any offsets applicable under Section 4.7).

(c) Following the expiration of the Royalty Term, all licenses granted to Licensee hereunder shall become perpetual, exclusive and fully paid-up.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

4.9 **Royalty Payment Schedule**. The Licensee will pay to Institute all Earned Royalties payable to Institute quarterly on or before February 28 (for the Calendar Quarter ending December 31), May 31 (for the Calendar Quarter ending March 31), August 31 (for the Calendar Quarter ending June 30) and November 30 (for the Calendar Quarter ending September 30) of each calendar year. Each payment will be for Earned Royalties accrued within the Licensee's most recently completed Calendar Quarter.

4.10 **Currency**. All consideration due Institute will be payable and will be made in United States dollars by wire transfer to an account designated by Institute. When Licensed Products are Sold for monies other than United States dollars, the Earned Royalties and other consideration will first be determined in the foreign currency of the country in which such Licensed Products were Sold and then converted into equivalent United States dollars. The exchange rate will be the average exchange rate quoted in *The Wall Street Journal* for the purchase of United States dollars during the last thirty (30) days of the reporting period.

4.11 **Royalty Reports**. Beginning with the First Commercial Sale of an Licensed Product, within [*] following the end of each Calendar Quarter, Licensee shall make quarterly royalty reports to Institute on or before each February 28, May 31, August 31 and November 30 of each year. Each royalty report will cover the Licensee's most recently completed Calendar Quarter and will show: (i) the amount invoiced for Sales and Net Sales of Licensed Products that are Sold during the most recently completed calendar quarter; (ii) the [*] Licensed Product that is Sold on a country by country basis; (iii) the Earned Royalties, in U.S. dollars, payable with respect to Sales of Licensed Products; (iv) the [*] the Earned Royalty; (v) a [*] to calculate Net Sales; and (vi) the exchange rates used.

4.12 **Taxes**. Earned Royalties on Net Sales of Licensed Products and other consideration accrued in, any country outside the United States may be reduced by any taxes, fees or other charges imposed by the government of such country, including those taxes, fees and charges allowed under the provisions of the definition of "Net Sales" in Article 1.

4.13 **Late Payments**. If Earned Royalties, fees, reimbursements for Patent Prosecution Costs or other monies owed to Institute are not received by Institute when due, the Licensee will pay to Institute interest at a rate of the lesser of: (a) [*], or any successor thereto, at 12:01 a.m. on the first day of each Calendar Quarter in which such payments are overdue or (b) the maximum rate permitted by Law. Such interest will be calculated from the date payment was due until actually received by Institute.

4.14 **Acknowledgement**. The Parties acknowledge that the payments required to be made by Licensee to Institute under this Agreement are in consideration of all rights granted to Licensee and obligations undertaken by Institute under this Agreement. Such granted rights include use of valuable Know-How Rights, and the right to participate in the JSC and the conduct of the Development Plan so as to discover or develop Licensed Products that may not be, or may cease to

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

be, covered by (a) Patent Rights, (b) Data Exclusivity, or (c) Orphan Drug Exclusivity. Each Party expressly acknowledges that it is their intention that royalties and other consideration be paid in accordance with the terms of this Agreement, and during the periods set forth in this Agreement, notwithstanding that a Licensed Product may be royalty-bearing at a reduced rate pursuant to Section 4.8(b) in the absence of coverage by (i) Patent Rights, or after the expiration of such Patent Rights, or (ii) Data Exclusivity, or (iii) Orphan Drug Exclusivity.

5. DILIGENCE; REGULATORY ACTIVITIES

5.1 **General Diligence**. Licensee, following execution of this Agreement, will use Commercially Reasonable Efforts to proceed with the development, manufacture and Sale of Licensed Products [*] in the Territory. Without limiting the following, unless otherwise agreed by the Parties in a writing that specifically references these obligations, Licensee shall:

(a) [*];

(b) [*];

(c) [*]; and

(d) [*];

provided that, if Licensee's failure to meet the applicable diligence obligation under Section 5.1(b) to Section 5.1(d) is the result of (i) Institute's failure to perform its obligations in accordance with (A) the Research Agreement and the Development Plan (including any timelines set forth therein), or (B) any Manufacturing Agreement entered into by the Parties, or (ii) additional development activities (including any changes to manufacturing process or activities) required by the FDA in order to obtain regulatory approval for a Licensed Product, then in each case the target timeframe to meet the diligence requirements set forth in Section 5.1(b) to Section 5.1(d), as applicable, shall be [*], to complete the required activities. The Parties agree and acknowledge that Licensee has met its diligence obligation as set forth in Section 5.1(a).

5.2 **Specific Diligence for [*] Program**. Following exercise of the [*] for the [*], Licensee will use Commercially Reasonable Efforts to proceed with the development, manufacture and Sale of Licensed Products that [*] [*] in the [*] in the Territory. Within [*] for the [*] Program, Licensee shall provide Institute with a reasonably detailed development plan for the further development of the [*], through to Regulatory Approval (the "**Licensee [*] Development Plan**"). Following Licensee's delivery of the Licensee [*] Development Plan to Institute, the Parties shall discuss and mutually agree upon the date upon which Licensee will be required to [*] occurring after exercise of the [*] for the [*] Program (the "**[*] Date**"). The [*] Date, once mutually agreed by the Parties or determined pursuant to Article 20 as described below, shall be executed by each Party

and thereupon constitute an additional diligence obligation for Program [*] arising from the [*] Program equivalent to the diligence obligations set forth in Section 5.1(a) through (c) for CTL Products arising from the Research Collaboration and be deemed to be a part of this Agreement. If the Parties are unable to agree on the [*] Date within [*] after Licensee's delivery of the Licensee [*] Development Plan to Institute, then such dispute shall first be escalated to the Executives for resolution in accordance with Section 20.1, and if not resolved within the time period set forth therein, each Party shall, [*] following the expiration of the time period for the Executive resolution under Section 20.1, [*] Date shall be [*].

5.3 **Governance**. The Parties' activities under this Agreement and the Research Agreement shall be overseen by the JSC, as further set forth in Article 3 of the Research Agreement. In the event that the Research Agreement is terminated or expires, the JSC will remain in place and continue to operate as set forth in the Research Agreement to the extent applicable to activities under this Agreement, including with respect to each Party's final decision making authority as set forth in Section 3.3(f) of the Research Agreement. For the avoidance of doubt, the exercise of such authority by Licensee shall in no way define, affect or diminish the diligence obligations of Licensee hereunder.

5.4 **Progress Reports**. On a [*] basis, but in any event no later than June 1st and December 1st in each calendar year, as long as Licensee continues to develop and commercialize Licensed Products, Licensee will submit a written report to Institute covering the Licensee's (and any of its Affiliates' or Sublicensees') activities related to this Agreement, including any updates or amendments to the Development Plan and activities being conducted pursuant to the Research Agreement (each, a "**Progress Report**"). The report will include information reasonably sufficient to enable Institute to ascertain progress by Licensee toward meeting this Agreement's diligence requirements set forth in Section 5.1. Each report will describe, where relevant: (a) current schedule of anticipated events or milestones; (b) summary of work completed and in progress, including against the Development Plan, during such period; (c) summary of work in progress and progress toward commercialization of Licensed Products; (d) significant corporate transactions involving Licensed Products, including any Sublicenses granted. Licensee shall include in each Progress Report the date of First Commercial Sale of any Licensed Product in each country, as applicable.

5.5 **Regulatory Activities**.

(a) Licensee shall be solely responsible, at Licensee's expense for filing, obtaining and maintaining all Regulatory Approvals required for the development and commercialization of Licensed Products anywhere in the Territory where Licensed Products are manufactured, used, Sold, offered for Sale or imported. Licensee will obtain all such Regulatory Approvals in its own name (or that of a Licensee Affiliate) and shall own all right, title and interest in and to such Regulatory Approvals, and all materials, data and information included therein and relating thereto. Notwithstanding the foregoing, and subject to the terms and conditions of the Research Agreement, Institute shall be responsible for obtaining any Regulatory Approvals required for any

clinical trials conducted by Institute or any Affiliate under the Research Agreement, provided that Institute shall provide Licensee with copies of all such fillings and correspondence relating thereto, and Licensee shall have a right of reference to all data, materials and information contained in any such regulatory filings and Regulatory Approvals.

(b) Institute shall transfer to Licensee all of the data and information Controlled by Institute and arising from (i) the activities under the Research Agreement, or (ii) activities conducted by or under the supervision of [*] prior to the date of the [*] in each case that is necessary or useful for the development, manufacturing and commercialization of EBV-Specific Autologous Products.

5.6 **Abandonment**. If Licensee decides to abandon, or does in fact abandon, on a Licensed Product by Licensed Product and Major Market-by-Major Market basis the development or commercialization of Licensed Products (including an [*], solely following the [*]), then Licensee shall forthwith notify Institute in writing and Institute shall have the right to terminate this Agreement, solely with respect to the Major Market(s) in which such abandonment has taken place, upon written notice to Licensee in relation to such Licensed Product(s) and Major Market(s). A suspension of a New Research Program or other activities related to the development or commercialization of a Licensed Product shall be deemed to be abandonment if Licensee does not have a good-faith intention to continue development and commercialization of such Licensed Product. Upon such termination, any such Licensed Products shall be deemed Reversion Products (as defined in Section 9.6(b)), and Section 9.7 shall apply. Promptly following such notice of termination, the Parties shall meet to discuss in good faith and agree upon the process for transitioning to Institute the rights to commercialize such Licensed Product in the applicable Major Markets, and to coordinate the ongoing development and commercialization of such product in such terminated Major Market, including the sharing of information, regulatory filings and data relating thereto.

6. MANUFACTURE AND SUPPLY

6.1 The Parties are parties to and intend to enter into one or more agreements that will govern the terms of manufacture and supply of CTL Products and New CTL Products and Program [*], including specific [*] Products for clinical supply for use in development activities, including clinical trials to be conducted by each Party pursuant to the Development Plan and under the Research Agreement (each, a "**Manufacturing Agreement**"). As of the Execution Date, the Parties anticipate that any such additional Manufacturing Agreement shall incorporate commercially reasonable terms that are appropriate for a similarly situated manufacturing agreement, and shall include at least the following principles, as set forth below in Sections 6.1(a) through (d), and other material terms such as pricing, as the Parties shall mutually agree upon:

(a) Institute shall be responsible for the manufacture and supply of CTL Products and New CTL Products and Program [*] (including specified [*] Products) for clinical supply through to [*] (which may include, subject to mutual agreement of the Parties, [*]), itself or through an Affiliate or mutually-agreed upon Third Party contract manufacturing organization ("**CMO**"). The costs applicable to such manufacturing activities will be set forth in the Development Plan under the Research Agreement.

(b) Institute's obligation to manufacture and supply as set forth in Section 6.1(a) shall be conditioned on (i) the manufacturing entity shall have all Regulatory Approvals required for manufacture of Licensed Products for clinical supply, and (ii) the manufacturing entity shall have appropriate production capacity (including the ability to scale up as required) for the applicable CTL Products and New CTL Products and Program [*] to meet the timelines and specifications provided by Licensee for Licensed Product for clinical development.

(c) The Parties shall discuss in good faith the arrangements for the manufacture and supply of Licensed Products for clinical development activities following completion of Phase I Clinical Trials and for commercialization of Licensed Products in the Territory, including the selection of an appropriate manufacturing entity, which may include without limitation, either Party or its Affiliates, or a mutually agreed Third Party CMO. If Licensee requests that Institute continue to perform manufacturing and supply activities for Licensed Products hereunder, then Institute shall, subject to negotiation and agreement on the terms of the Manufacturing Agreement, manufacture and supply such Licensed Products to Licensee, with the further terms of such manufacture and supply to be set forth in the Manufacturing Agreement.

(d) The Parties acknowledge and agree that for the purposes of facilitating the manufacture and supply of Licensed Products to support the Parties' activities under this Agreement and the Research Agreement, including for reasons related to regulatory requirements or cost-effectiveness and economies of scale of production, Licensee may elect, or it may be necessary for the Parties to transfer manufacturing and supply to a different Third Party CMO, or to a different facility. Each Party agrees that with respect to any transfer of manufacturing technology, it will provide reasonable assistance to the other Party, at such other Party's reasonable expense and subject to such arrangements as are necessary to protect confidential information and proprietary know-how, to effect such transfer in a timely fashion and without undue disruption to the manufacture and supply of the applicable Licensed Product(s).

7. CERTAIN COVENANTS

7.1 **General Rule**. Subject to Section 7.2, during the period beginning on the Original Effective Date and ending on the expiration or earlier termination of this Agreement, neither Party shall (directly or indirectly, and either with or without a bona fide collaborator) conduct outside the scope of this Agreement, or the Research Agreement, any programs that are intended to identify, optimize, develop or commercialize a Competing Product.

7.2 **Exception for Certain Third Party Products**. Notwithstanding Section 7.1, during the Term, Licensee may acquire or in-license from a Third Party (a) rights in technology (including rights in patents, patent application and/or know-how) that Licensee [*] to the Patent Rights and Know-How Rights licensed by Institute to Licensee hereunder and are necessary or useful for the development and commercialization of Licensed Products hereunder, and/or (b) rights to develop and commercialize a CTL Product or New CTL Product or Program [*] that [*] (a "**Third Party Product**") if Licensee [*] that such [*] by Licensee or Institute (including any such Third Party Product [*], including without limitation because such Third Party Product (a) [*] then under development, (b) [*] then under development, and/or (c) [*] then under development by Licensee. Licensee may negotiate the terms of such a Third Party license or other agreement at its sole discretion. Notwithstanding the foregoing, if Licensee acquires rights in such a Third Party Product, Licensee shall [*] the development and commercialization of such Third Party Product pursuant to [*], for the Term of this Agreement, provided that if such Third Party Product is [*], [*] pursuant to the foregoing shall be [*] of the amounts that [*].

7.3 **Autologous CTL Programs**. On an Indication-by-Indication basis, Licensee shall notify Institute in writing within [*] following Licensee's determination that Licensee (a) will not pursue development or commercialization of an Allogeneic CTL Product for use in a given Indication under this Agreement or the Research Agreement, and (b) does not wish to pursue the development and commercialization of an Autologous CTL Product for use in such Indication. Provided that such Indication is not the subject of an existing research and development Program under the Research Agreement, Institute shall have the right to develop and commercialize Autologous CTL Products for use in such Indication without such development and commercialization being a breach of this Article 7, and the license granted to Licensee pursuant to Section 2.2 with respect to Autologous CTL Products shall no longer apply to any Autologous CTL Product for use in such Indication. Without limiting the foregoing, the Parties shall discuss, at least annually through the JSC, whether Licensee intends to, or is continuing to pursue development or commercialization of an Allogeneic CTL Product for use in the Indications that are the subject of research and development activities pursuant to the Research Agreement. Licensee will provide such information regarding its development and commercialization of such Allogeneic CTL Products as is required to reasonably inform Institute for the purposes of such discussions.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

8. BOOKS AND RECORDS

8.1 **Accounting**. Licensee shall calculate all amounts, and perform other accounting procedures required, under this Agreement and applicable to it in accordance with GAAP. Licensee shall keep, and shall require each Sublicensee to keep, accurate books and records showing all Licensed Products manufactured, used, and/or Sold under the terms of this Agreement. Books and records must be preserved for at least five (5) years from the date of the Earned Royalty payment to which they pertain. Upon reasonable notice, key personnel, books and records will be made reasonably available and will be open to examination by representatives or agents of Institute during regular office hours to determine their accuracy and assess Licensee's and, if applicable, each Sublicensee's, compliance with the terms of this Agreement, provided that Licensee and any Sublicensees shall not have any obligation to provide access more than once in any given twelve (12) month period.

8.2 **Audits**. In addition to the right of Institute to examine the books and records and interview key personnel as provided in Section 8.1 above, Institute, at its own cost, through an independent auditor reasonably acceptable to Licensee and, if applicable, a Sublicensee (and who has executed an appropriate confidentiality agreement reasonably acceptable to Licensee and, if applicable, a Sublicensee that requires the auditor to keep any information learned by it confidential except as needed to report its audit conclusions to Institute), may inspect and audit the relevant records of Licensee or a Sublicensee pertaining to the calculation of any Milestones and Earned Royalties due to Institute under this Agreement. Licensee and, if applicable, a Sublicensee shall provide such auditors with access to the records during reasonable business hours. Such access need not be given to any such set of records more often than once each year or more than five (5) years after the date of any report to be audited. Institute shall provide Licensee with written notice of its election to inspect and audit the records related to the Earned Royalty due hereunder not less than thirty (30) days prior to the proposed date of review of Licensee's and, if applicable, a Sublicensee's records by Institute's auditors. Should the auditor find any underpayment of Milestones or Earned Royalties by Licensee, Licensee shall (a) promptly pay Institute the amount of such underpayment; (b) shall reimburse Institute for the cost of the audit, if such underpayment equals or exceeds the [*]; and (c) provide such auditors with an audit right exercisable within six (6) months after Institute receives the audit report. If the auditor finds overpayment by Licensee, then Licensee shall have the right to deduct the overpayment from any future royalties due to Institute by Licensee or, if no such future royalties are payable, then Institute shall refund the overpayment to Licensee within [*] after Institute receives the audit report. Licensee may designate competitively sensitive information which such auditor may see and review but which it may not disclose to Institute; provided, however, that such designation shall not restrict the auditor's investigation or conclusions.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

9. **TERM; TERMINATION**

9.1 **Term**. Unless otherwise terminated by operation of law, Section 9.2, or by acts of the parties in accordance with the terms of this Agreement, this Agreement will remain in effect from the Original Effective Date until the expiration of all payment obligations hereunder (the "**Term**").

9.2 **Bankruptcy**. This Agreement will automatically terminate without the obligation to provide sixty (60) days' notice as set forth in Section 9.3 or 9.4 upon the filing of a petition for relief under the United States Bankruptcy Code by or against the Licensee as a debtor or alleged debtor.

9.3 **Termination for Material Breach**. If a Party fails to perform or violates any material term of this Agreement, then the other Party may give written notice of breach to the breaching Party. If the breaching Party fails to repair the default within ninety (90) days after the date of receipt of such notice of breach, the other Party may terminate this Agreement by delivering a second written notice. If such second notice is sent to the breaching Party, this Agreement will automatically terminate on the date that such notice is received by the breaching Party.

9.4 **Termination for Convenience**. The Licensee has the right at any time to terminate this Agreement at will by providing written notice of termination to Institute, and paying to Institute a break fee equal to fifty percent (50%) of the amount of the next Milestone Payment that would be payable to Institute in respect of Licensee's then most advanced Licensed Product. Termination of this Agreement will be effective sixty (60) days from the date such termination notice is received by Institute. Institute does not have any right to terminate this Agreement for convenience.

9.5 **Termination if Patent Rights Challenged**. Institute has the right to terminate this Agreement by providing written notice of termination to Licensee, if Licensee or any of its Affiliates commence, pursue, encourage or support any administrative, judicial or other similar proceeding to challenge the validity, enforceability or scope of any rights under any Patent Rights, including without limitation by (a) filing a declaratory judgment action in which any such Patent Rights are alleged to be invalid or unenforceable; (b) citing prior art pursuant to 35 U.S.C. §301, filing a request for re-examination of any of such Patent Rights pursuant to 35 U.S.C. §302 and/or §311, or provoking or becoming a party to an interference with an application for any such Patent Rights pursuant to 35 U.S.C. §135; or (c) filing or commencing any re-examination, opposition, cancellation, nullity or similar proceedings against any such Patent Rights in any country.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

9.6 **Effects of Termination or Expiration**. The termination or expiration of this Agreement will not relieve the Licensee of its obligation to pay any fees, royalties or other payments owed to Institute at the effective date of such termination or expiration and will not impair any accrued right of Institute, including the right to receive Earned Royalties in accordance with Article 4. Additionally:

(a) Upon expiration (but not termination) of this Agreement, the licenses granted to Licensee under Section 2.1 (with respect to Licensed Products that are [*], solely to the extent that the [*] has been exercised prior to expiration) shall continue on a perpetual, irrevocable, exclusive, fully paid-up, royalty-free basis.

(b) Upon termination (but not expiration) of this Agreement, all rights and licenses granted to Licensee in Article 2 shall terminate, subject to Section 9.7, all rights of Licensee under the Patent Rights and Know-How Rights shall revert to Institute, and Licensee and its Affiliates shall cease all use of the Patent Rights and the Know-How Rights. Following the effective date of such termination, all Licensed Products that are EBV-Specific CTL Products or New CTL Products or Program [*], as applicable, shall thereafter be deemed "**Reversion Products**" and shall be subject to Section 9.7. Notwithstanding the foregoing, in the event of a material breach by Institute of this Agreement permitting Licensee to terminate this Agreement pursuant to Section 9.3, as finally determined pursuant to a resolution in accordance with Article 20 or mutually agreed by the Parties (including by way of settlement), Licensee may, at its sole discretion and in lieu of such termination, elect to keep this Agreement in place and continue the development and commercialization of Licensed Products hereunder. If Licensee decides to keep this Agreement in place in lieu of termination, all payments, including all Milestone Payments and Earned Royalties, that would be due to Institute thereafter under the terms of this Agreement shall be [*] for the remainder of the Term.

(c) Upon termination (but not expiration) of this Agreement, all regulatory filings (including all INDs and BLAs) and Regulatory Approvals and all other documents necessary to further develop and commercialize the Reversion Products, as they exist as of the date of such termination, (and all of Licensee's right, title and Institute therein and thereto) shall be assigned to Institute, and Licensee shall provide to Institute one (1) copy of the foregoing documents and filings that relate to Reversion Products, subject to Institute's reimbursement of Licensee's actual costs incurred in transferring such items to Institute, and preparing such items in connection with such transfer. For clarity, Institute shall have the right to use the foregoing material information, materials and data developed by Licensee solely in connection with Institute's (or its Affiliates or licensees') development, manufacture and commercialization of Reversion Products.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

(d) Upon termination (but not expiration) of this Agreement, in the event that Licensee has inventory of any Licensed Product included in the Reversion Products prior to the effective date of termination, Licensee shall have [*] after the effective date of termination during which to dispose of such inventory (subject to the payment to Institute of any royalties due hereunder thereon) (the "**Inventory Disposal Period**").

(e) Upon termination (but not expiration) of this Agreement, Licensee shall provide to Institute the tangible embodiments of all know-how, data and information Controlled by Licensee and its Affiliates in existence as of the effective date of such termination to the extent necessary for the development and commercialization of the Reversion Products as such Reversion Products exist as of the effective date of such termination, subject, to Institute's reimbursement of Licensee's actual out of pocket and internal direct costs and expense incurred in transferring such items, and preparing and making such items in connection with such transfer. Licensee shall grant, and hereby grants to Institute, subject to Institute's payment obligations under Section 9.7, and reimbursement of Licensee's costs of transferring such materials, a perpetual, worldwide, transferable, sublicensable right and license under such know-how, data and information solely for (i) researching, developing, using, importing, selling and offering for sale Reversion Products in the Territory, which license shall be exclusive for purposes of this subpart (i), and (ii) making and having made Reversion Products anywhere in the Territory for use, importation, sale and offer for sale in the Territory, which license shall be non-exclusive for purposes of this subpart (ii).

(f) Upon termination (but not expiration) of this Agreement, subject to Section 9.7, Licensee shall grant and hereby grants to Institute an exclusive, royalty-bearing (as set forth in Section 9.7), non-transferable license, with the right to grant sublicenses, under any patents or patent applications Controlled by Licensee or Affiliates as of the effective date of termination [*] and that are [*].

(g) Upon termination (but not expiration) of this Agreement, Licensee shall provide to Institute all data generated during the term of this Agreement pursuant to this Agreement and the Research Agreement [*] Reversion Products and [*], subject to Institute's [*].

(h) Neither Party shall be relieved of any obligation that accrued prior to the effective date of expiration or a termination.

(i) Any costs and expenses incurred by Licensee in connection with the assignments and transfers made by Licensee under this Section 9.6 shall be borne by Institute.

(j) Nothing in this Section 9.6 shall be deemed to limit any remedy to which either Party may be entitled by applicable Law.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

(k) The Parties agree that CMV-Specific CTL Products and CMV [*] shall not be considered Reversion Products under the Agreement and accordingly clause (b) through (g) (inclusive) of this Section 9.6 and Section 9.7 shall not be applicable thereto.

9.7 **Reversion of Rights**. If Institute obtains rights in any Reversion Product pursuant to this Article 9, Institute will have the rights under such Reversion Product set forth in Section 9.6, provided that if Institute elects to grant a license or sublicense to any Third Party under patent rights or know-how Controlled by Licensee and relating to such Reversion Products (the "**Reversion Product IP**") to develop and commercialize any such Reversion Product, then on a Reversion Product-by-Reversion Product basis, Institute shall pay to Licensee a specified percentage of all consideration of any type received from each such Third Party licensee or sublicensee paid for the grant of such license or sublicense, or sales of products that are claimed or covered by such Reversion Product IP, as set forth in the table below, with the applicable percentage being based on (a) [*], and (b) [*].

[*] Effective Date of Termination	Royalty Percentage [*]	Royalty Percentage [*]
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]
[*]	[*]	[*]

9.8 **Surviving Provisions**. Any termination or expiration of this Agreement will not affect the rights and obligations set forth in the following Articles and Sections: Articles 1, 10, 12, 16, 17, 19, 20, 22 and 23, and Sections 2.6, 3.4, 4.12 and 4.13 (to the extent applicable to payments accruing during the Term), 5.6 (to the extent applicable to Licensed Products that become Reversion Products pursuant to Section 5.6), 8.1, 8.2, 9.6, 9.7, 9.8, 9.9 (following expiration, but not termination), 11.2(b) (with respect to the last sentence thereof, solely with respect to the manufacture, use, offer to sell, sale, importation or other disposition of the applicable Licensed Products prior to the expiration or termination of this Agreement), 11.3, 13.1, 13.3, 15.1, 15.2 and 15.3.

9.9 **Section 365(n) of the Bankruptcy Code**. All rights and licenses granted under or pursuant to any section of this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property" as defined under Section 101(35A) of the U.S. Bankruptcy Code to the extent permitted thereunder. The Parties shall retain and may fully exercise all of their respective rights and elections under the U.S. Bankruptcy Code. Upon the bankruptcy of any Party, the non-bankrupt Party shall further be entitled to a complete duplicate of (or complete access to, as appropriate) any such intellectual property, and such, if not already in its possession, shall be promptly delivered to the non-bankrupt Party, unless the bankrupt Party elects to continue, and continues, to perform all of its obligations under this Agreement.

10. USE OF NAMES AND TRADEMARKS

10.1 Nothing contained in this Agreement will be construed as conferring any right to either Party to use in advertising, publicity or other promotional activities any name, trade name, trademark or other designation of the other Party (including a contraction, abbreviation or simulation of any of the foregoing), except if such use if required by applicable law, rule or regulation (including the regulations of any securities exchange upon which Licensee's shares are listed).

11. REPRESENTATIONS AND WARRANTIES

11.1 **Mutual Representations and Warranties**. Each Party represents and warrants to the other Party that, as of the Execution Date:

(a) such Party is duly organized and validly existing under the Laws of the jurisdiction of its incorporation or organization;

(b) such Party has taken all action necessary to authorize the execution and delivery of this Agreement and the performance of its obligations under this Agreement;

(c) this Agreement is a legal and valid obligation of such Party, binding upon such Party and enforceable against such Party in accordance with the terms of this Agreement, except as enforcement may be limited by applicable bankruptcy, fraudulent conveyance, insolvency, reorganization, moratorium and other laws relating to or affecting creditors' rights generally and by general equitable principles; and

(d) such Party has all right, power and authority to enter into this Agreement, to perform its obligations under this Agreement.

11.2 **Certain Institute Representations and Covenants**.

(a) Institute is the sole owner of the Patent Rights licensed to Licensee hereunder with the right to grant Licensee the licenses described in Sections 2.1 and 2.2. As of the Execution Date, Institute has not assigned, transferred, conveyed, granted any license or other rights, or otherwise encumbered its right, title and interest in the Patent Rights or the Know-How, or other patents, patent applications or know-how specific to CTL Products, in any way that would conflict with or limit the scope of any of the rights or licenses granted to Licensee hereunder.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

(b) The Institute hereby represents and warrants to Licensee that as of the Execution Date, to the best of its knowledge there are no patents or patent applications that if issued as patents, in either case, Controlled by Institute that are necessary for the development and commercialization of CTL Products, HPV-Specific CTL Products, BKV/JCV-Specific CTL Products or the [*] as currently conducted by Institute, or as contemplated to be conducted by the Parties pursuant to this Agreement (if the [*] was exercised by Licensee) and/or the Research Agreement. Institute hereby irrevocably covenants, on behalf of itself and its Affiliates that it will not, directly or indirectly, alone or by, with or through others, cause, induce or authorize, or voluntarily assist, participate or cooperate in, the commencement, maintenance or prosecution of any action or proceeding of any kind or nature whatsoever, including, but not limited to, any suit, complaint, grievance, demand, claim, cause of action in, of or before any Governmental Authority against Licensee, or any Affiliate or sublicensee of Licensee, arising from, or in connection with any alleged infringement of any issued patents in any country Controlled by Institute in connection with the manufacture, use, offer to sell, sale, importation or other disposition of any Licensed Product that is a CTL Product, a New CTL Product or a Program [*] in accordance with and subject to all terms and conditions applicable to a license granted under this Agreement, by Licensee, or any Affiliate or sublicensee of Licensee occurring after the First Restatement Date.

11.3 **Disclaimer of Representations and Warranties**. Other than the representations and warranties provided in Sections 11.1 and 11.2 above, NEITHER PARTY MAKES ANY REPRESENTATIONS AND WARRANTIES, WHETHER EXPRESS OR IMPLIED, AND EXPLICITLY DISCLAIMS ANY REPRESENTATION AND WARRANTY, INCLUDING WITH RESPECT TO ANY ACCURACY, COMPLETENESS, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, COMMERCIAL UTILITY, NON-INFRINGEMENT OR TITLE FOR THE INTELLECTUAL PROPERTY, PATENT RIGHTS, LICENSE AND ANY PRODUCT.

12. LIMITATION OF LIABILITY

12.1 NEITHER PARTY WILL BE LIABLE FOR ANY LOST PROFITS, COSTS OF PROCURING SUBSTITUTE GOODS OR SERVICES, LOST BUSINESS, ENHANCED DAMAGES FOR INTELLECTUAL PROPERTY INFRINGEMENT OR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHER SPECIAL DAMAGES SUFFERED BY THE OTHER PARTY OR ITS SUBLICENSEES OR AFFILIATES ARISING OUT OF OR RELATED TO THIS AGREEMENT FOR ALL CAUSES OF ACTION OF ANY KIND (INCLUDING TORT, CONTRACT, NEGLIGENCE, STRICT LIABILITY AND BREACH OF WARRANTY) EVEN IF THE OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

13. INTELLECTUAL PROPERTY; PATENT PROSECUTION AND MAINTENANCE

13.1 **Intellectual Property Ownership**. With the exception of the rights granted to Licensee pursuant to this Agreement, each Party shall retain all right, title and interest in and to its Background IP. Ownership of intellectual property and inventions arising as a result of the Parties' activities under the Research Agreement are set forth in Article 9 of the Research Agreement. Except as set forth in the Research Agreement, ownership of intellectual property rights arising out of this Agreement or the Research Agreement shall follow inventorship. Inventorship shall be determined in accordance with United States Patent Law (without regard to any conflict of law principles).

13.2 **Patent Prosecution**.

(a) Institute shall have the first right, and shall use Commercially Reasonable Efforts to diligently prosecute and maintain the Patent Rights existing as of the Original Effective Date and licensed to Licensee hereunder (the "**Base Patent Rights**") at Licensee's expense, using United States based patent counsel of its choice reasonably acceptable to Licensee. Institute will provide Licensee promptly with copies of all relevant documentation so that Licensee will be informed of the continuing prosecution and may comment upon such documentation sufficiently in advance of any initial deadline for filing a response. Institute agrees that it will incorporate any reasonable comments by Licensee in relation to such prosecution activities, provided that with respect to any claims of the Base Patent Rights that relate directly to Licensed Products or the manufacture or use thereof, Licensee shall have the right to make the final decision regarding prosecution of such claims, including the filing of any new claims relating to Licensed Products or the manufacture or use thereof. Licensee agrees that all documentation relating to the prosecution and maintenance of the Patent Rights shall be the Confidential Information of both Parties. Without limiting the foregoing, Institute shall use all reasonable efforts to amend any patent application to include claims reasonably requested by Licensee to protect the products contemplated to be sold under this Agreement and the activities being conducted under the Research Agreement.

(b) Licensee shall have the first right, and shall use Commercially Reasonable Efforts to diligently prosecute and maintain any patents and patent applications arising from activities conducted under the Research Agreement that relate to (i) Allogeneic CTLs or Allogeneic CTL Products, and (ii) Autologous CTL Products that are EBV-Specific CTL Products, and (iii) New CTL Products and Program [*], in each case of (i), (ii) and (iii), provided that such patents and patent applications do not claim priority to any patent or patent application included in the Base Patent Rights (in which case Section 13.2(a) shall apply) (the "**Research Agreement Patent Rights** "), at Licensee's expense, using United States based patent counsel of its choice reasonably acceptable to Institute; provided, however, that Institute shall reimburse Licensee for fifty percent (50%) of all prosecution and maintenance costs (including attorney's fees) incurred by Licensee for the filing, prosecution and maintenance of any patents and patent applications claiming priority to, or

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having common priority with, PCT Application Number PCT/AU2013/001216 ("Improved Human Herpesvirus Immunotherapy") (including such patent application itself). For clarity, any Patent Rights Controlled by Institute as of the date upon which the Parties mutually agree in writing to include a New Research Program within the Research Agreement, and New CTL Products arising from such New Research Program within the scope of this Agreement (each, a "**New Research Program Inclusion Date**") that relate specifically to such New Research Program (including the Target thereof) or such New CTL Products (the "**New Research Patent Rights**") shall be considered Research Agreement Patent Rights as of the New Research Program Inclusion Date, and shall be subject to this Section 13.2. Promptly following any New Research Program Inclusion Date, unless the Parties otherwise agree in writing, Institute will transfer to Licensee, or to counsel of Licensee's choice reasonably acceptable to Institute, all relevant documentation required for Licensee to assume responsibility for prosecution and maintenance of such New Research Patent Rights. Following the New Research Program Inclusion Date, Licensee will provide Institute promptly with copies of all relevant documentation so that Institute will be informed of the continuing prosecution and may comment upon such documentation sufficiently in advance of any initial deadline for filing a response. Licensee agrees that it will incorporate any reasonable comments by Institute in relation to such prosecution activities, provided that with respect to any claims of the Research Agreement Patent Rights that relate directly to Autologous CTLs or Autologous CTL Products, or the manufacture or use thereof, Institute shall have the right to make the final decision regarding prosecution of such claims, including the filing of any new claims relating to Autologous CTLs or Autologous CTL Products, or the manufacture or use thereof.

(c) Each Party agrees that all documentation relating to the prosecution and maintenance of the Patent Rights shall be the Confidential Information of both Parties. Without limiting the foregoing, Institute shall use all reasonable efforts to amend any patent application to include claims reasonably requested by Licensee to protect the products contemplated to be sold under this Agreement and the activities being conducted under the Research Agreement.

(d) The Parties agree that as of the Execution Date, Institute shall have the sole right to prosecute and maintain, and Licensee shall have no obligation to pay any costs or expenses incurred after the Execution Date in relation to the prosecuting and maintaining of, the patent applications listed in Schedule 13.2 or any patent or patent application claiming priority thereto, or having common priority therewith.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

13.3 **Effects of Termination**. The Licensee will be obligated to pay costs incurred in relation to prosecuting and maintaining the Patent Rights in accordance with Section 13.2, even if the invoices for such costs are received by the Licensee after the delivery or receipt of a notice of termination. The Licensee may terminate its obligation to pay the cost of any given patent application or patent under the Patent Rights in any or all designated countries upon three (3)-months' written notice to Institute. Institute may continue prosecution and/or maintenance of such application(s) or patent(s), and applications in foreign countries where Licensee has elected not to pay costs, at its sole discretion and expense, in which case the Licensee will have no further right or licenses thereunder.

14. PATENT INFRINGEMENT

14.1 **Infringement Notice**. If Institute or the Licensee learns of infringement of potential commercial significance of any Patent Rights licensed under this Agreement, the knowledgeable Party will provide the other Party with: (a) written notice of such infringement; and (b) any evidence of such infringement available to it (the "**Infringement Notice**"). During the period in which, and in the jurisdiction where, Licensee has exclusive rights under this Agreement, neither Institute nor the Licensee will notify a possible infringer of infringement or put such infringer on notice of the existence of any Patent Rights without first obtaining consent of the other, which consent will not be unreasonably withheld, delayed or conditioned; provided, however, that Licensee may notify any then-existing Sublicensees under the relevant Patent Rights of such infringement without Institute's prior consent if such Sublicensee is bound by obligations of confidentiality with respect to such information. Both Institute and the Licensee will use their diligent efforts to cooperate with each other to terminate such infringement (with or without litigation).

14.2 **Enforcement**. If infringing activity of potential commercial significance has not been abated within [*] following the date the Infringement Notice for such activity was provided, then during the period in which, and in the jurisdiction where, Licensee has exclusive rights under this Agreement, Licensee shall have the first right, but not the obligation, to Institute suit for patent infringement against the infringer after providing Institute (a) [*], including an [*] and (b) [*] . Institute may voluntarily join such suit at Licensee's reasonable expense, but may not thereafter commence suit against the infringer for the acts of infringement that are the subject of Licensee's suit or any judgment rendered in such suit. Licensee may not join Institute in a suit initiated by Licensee without Institute's prior written consent, such consent not to be unreasonably withheld, delayed or conditioned. If in a suit initiated by Licensee, Institute is involuntarily joined other than by Licensee, then Licensee will pay any documented costs incurred by Institute arising out of such suit, including any documented legal fees of counsel that Institute selects and retains to represent it in the suit. Licensee shall be free to enter into a settlement, consent judgment or other voluntary disposition, provided that any settlement, consent judgment or other voluntary disposition that (i) limits the scope, validity or enforcement of the Patent Rights or (ii) admits fault or wrongdoing on the part of Licensee or Institute must be approved in advance by Institute in writing, such approval not to be unreasonably withheld, delayed or conditioned. Licensee's request for such approval shall include complete copies

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of final settlement documents, a detailed summary of such settlement, and any other information material to such settlement. Institute shall provide Licensee notice of its approval or denial within [*] of any request for such approval by Licensee, provided that (A) in the event Institute wishes to deny such approval, such notice shall include a detailed written description of Institute's reasonable objections to the proposed settlement, consent judgment, or other voluntary disposition and (B) Institute shall be deemed to have approved of such proposed settlement, consent judgment, or other voluntary disposition in the event it fails to provide such notice within such [*] period in accordance herewith.

14.3 **Step-In Right**. If, within [*] following the date the Infringement Notice was provided, infringing activity of potential commercial significance has not been abated and if Licensee has not brought suit against the infringer, then Institute may Institute suit for patent infringement against the infringer. If Institute institutes such suit, then Licensee may not join such suit without the prior written consent of Institute and may not thereafter commence suit against the infringer for the acts of infringement that are the subject of Institute's suit or any judgment rendered in such suit.

14.4 **Recoveries**. Any recovery or settlement received in connection with any suit will first be shared by Institute and Licensee to cover any litigation costs each incurred and next shall be paid to Institute or Licensee to cover any litigation costs it incurred in excess of the litigation costs of the other. Any remaining recoveries shall be allocated as follows:

(a) For any portion of the recovery or settlement related to the infringement of the Patent Rights, other than for amounts attributable and paid as enhanced damages for willful infringement: for any suit that is initiated by Licensee and in which Institute was not a party in the litigation, Institute shall receive [*] of the recovery, and the Licensee shall receive the remainder; and

(b) for any suit that is initiated by the Licensee or Institute and that the other Party voluntarily joined (but only to the extent such voluntary joining is allowed under this Agreement or expressly by the other Party in a separate agreement) or involuntarily joined, the non-initiating Party's percentage of such recovery shall be [*]

For any portion of the recovery or settlement related to the infringement of Patent Rights paid as enhanced damages for willful infringement:

(c) for any suit that is initiated by Licensee or Institute and the other Party voluntarily joined but only to the extent such voluntary joining is allowed under this Agreement or expressly by the other Party in a separate agreement) or involuntarily joined, the non-initiating Party's percentage of such recovery shall be [*] and the initiating Party shall receive the remainder; and

(d) for any suit that is initiated by Licensee and in which Institute was not a party in the litigation, Institute shall receive [*] and the Licensee shall receive the remainder.

For any portion of the recovery or settlement received in connection with any suit that is initiated by Institute and in which Licensee was not a party in the litigation, any recovery [*].

14.5 **Cooperation**. Each Party will reasonably cooperate and assist with the other in litigation proceedings Instituted hereunder but at the expense of the Party who initiated the suit (unless such suit is being jointly prosecuted by the Parties). For clarity, such requirement does not require a Party to join a suit unless otherwise specifically required under this Agreement. If Institute is subjected to Third Party discovery related to the Patent Rights licensed to Licensee hereunder, or to Licensed Products, Licensee will pay Institute's documented out of pocket expenses with respect to same.

15. INDEMNIFICATION

15.1 **Indemnification by Licensee**. Licensee shall defend, indemnify and hold Institute and its respective trustees, officers, faculty, students, employees, contractors and agents (the "**Institute Indemnitees**") harmless from and against any and all liability, damage, loss, cost or expense (including reasonable attorneys' fees), including, without limitation, bodily injury, risk of bodily injury, death and property damage to the extent arising out of Third Party claims and suits related to (a) this Agreement or any Sublicense, including (i) the development, testing, use, manufacture, promotion, sale or other disposition of any Licensed Product (including any product liability claim), excluding any activities relating to Autologous CTL Products prior to the exercise of the Option, or following reversion to Institute pursuant to Section 7.3 and/or Section 9.6, (ii) any enforcement action or suit brought by Licensee against a Third Party for infringement of the Patent Rights, (iii) any claim by a Third Party that the practice of the Patent Rights or the design, composition, manufacture, use, sale or other disposition of any Licensed Product infringes or violates any patent, copyright, trade secret, trademark or other intellectual property right of such Third Party, (iv) any breach of this Agreement or Laws by Licensee, its Affiliates or Sublicensees and (b) Licensee's negligence, omissions or willful misconduct, provided that Licensee's obligations pursuant to this Section 15.1 shall not apply to the extent such claims or suits result from the negligence, gross negligence or willful misconduct of any Institute Indemnitees as determined by a court of law.

15.2 **Indemnification by Institute**. Institute shall, to the extent permitted by law, defend, indemnify and hold Licensee and its respective stockholders, officers, representatives, employees, contractors and agents ("**Licensee Indemnitees**") harmless (or shall cause each [*] to defend, indemnify and hold Licensee Indemnitees harmless) from and against any and all liability, damage, loss, cost or expense (including reasonable attorneys' fees), including, without limitation, bodily injury, risk of bodily injury, death and property damage to the extent arising out of Third Party claims and suits related to any grant of rights to any Third Party ("**[*]**") to develop or commercialize

any product directed to one or more [*] associated with [*] after the Execution Date, provided that Institute's obligations pursuant to this Section 15.2 shall not apply to the extent such claims or suits result from the negligence, gross negligence or willful misconduct of any Licensee Indemnitees as determined by a court of law.

15.3 **Process** . As a condition to an Institute Indemnitee's or Licensee Indemnitee's (each, an "**Indemnitee**") right to receive indemnification under Section 15.1 or Section 15.2, as applicable, an Indemnitee shall: (a) promptly notify (not to exceed thirty (30) days) the indemnifying Party as soon as it becomes aware of a claim or suit for which indemnification may be sought pursuant hereto; (b) reasonably cooperate, and cause the individual Indemnitees claiming indemnification under this Article 15 to reasonably cooperate, with the indemnifying Party in the defense, settlement or compromise of such claim or suit; and (c) permit the indemnifying Party to control the defense, settlement or compromise of such claim or suit, including the right to select defense counsel. In no event, however, may the indemnifying Party compromise or settle any claim or suit in a manner which (i) admits fault or negligence on the part of any Indemnitee; (ii) commits any Indemnitee to take, or forbear to take, any action, without the prior written consent of the other Party (which consent in the case of either (i) or (ii) shall not be unreasonably withheld, delayed or conditioned), or (iii) where the indemnifying Party is Licensee, grant any rights under the Patent Rights except for Sublicenses permitted under Article 2 . The Indemnitees shall reasonably cooperate with the indemnifying Party and its counsel in the course of the investigation of, preparation for and defense of any such suit, claim or demand, such cooperation to include without limitation using reasonable efforts to provide or make available documents, information and witnesses, and provided further that no Indemnitee may compromise or settle any such Third Party claim without the indemnifying Party's written consent.

15.4 **Insurance**. The Licensee, at its reasonable cost and expense, will insure its activities in connection with any work performed hereunder and will obtain, keep in force, and maintain Commercial Form General Liability Insurance (contractual liability included) with limits as follows:

Each Occurrence	[*]
Products/Completed Operations Aggregate	[*]
Personal Injury	[*]
General Aggregate (commercial form only)	[*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

15.5 **Certificates**. After receipt of Institute's written request, the Licensee will furnish Institute with certificates of insurance evidencing compliance with all requirements. Such certificates will: indicate Institute as an additional insured(s) under the coverage described above in Section 15.4.

16. **NOTICES**

Any notice or payment hereunder shall be deemed to have been properly given when sent in writing in English to the respective address below and shall be deemed effective:

(a) on the date of delivery if delivered in person;

(b) on the date of mailing if mailed by first-class certified mail, postage paid;

(c) on the date of mailing if mailed by any global express carrier service that requires the recipient to sign the documents demonstrating the delivery of such notice or payment; or

(d) in the case of notices, if sent by email, on the date the recipient acknowledges having received that email by either an email sent to the sender or by a notice delivered by another method in accordance with this Section 16.1, except that, automated replies and "read receipts" shall not be considered acknowledgement of receipt.

In the case of Licensee:

For notices:

Atara Biotherapeutics, Inc.
611 Gateway Blvd #900
South San Francisco, CA 94080
U.S.A.
Attention: General Counsel

With a Copy to:

Atara Biotherapeutics, Inc.
2430 Conejo Spectrum St.
Thousand Oaks, CA 91320
U.S.A.
Attention: Global Head of Research & Development

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

In the case of Institute:

For notices:

QIMR Berghofer Medical Research Institute
300 Herston Road,
Herston, Queensland, 4006
AUSTRALIA
Attention: Chief Operating Officer

For remittance of payments:

QIMR Berghofer Medical Research Institute
300 Herston Road,
Herston, Queensland, 4006
AUSTRALIA
Attention: Chief Financial Officer

17. **ASSIGNABILITY**

17.1 The Licensee may assign or transfer this Agreement, and the rights granted to Licensee under the terms of this Agreement, without Institute's prior written consent, only to an Affiliate of Licensee or in the case of assignment or transfer to a party that succeeds to all or substantially all of Licensee's business or assets relating to this Agreement, whether by stock sale, merger, operation of law or otherwise, provided that Licensee gives Institute written notice within [*] after the effective date of such assignment. This Agreement is binding upon and will inure to the benefit of a Party, its successors and assigns. Any assignment not in accordance with this Section 17.1 shall be null and void in its entirety.

18. **FORCE MAJEURE**

18.1 The Parties shall not be responsible for failure to perform due to the occurrence of any events beyond their reasonable control which render their performance impossible, including, but not limited to: accidents (environmental, toxic spill, etc.); acts of God; biological or nuclear incidents; casualties; earthquakes; fires; floods; governmental acts; orders or restrictions; inability to obtain suitable and sufficient labor, transportation, fuel and materials; local, national or state emergency; power failure and power outages; acts of terrorism; strike; and war.

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

19. **GOVERNING LAWS**

19.1 This Agreement will be interpreted and construed in accordance with the laws of the State of New York, United States of America, excluding any choice of law rules that would direct the application of the laws of another jurisdiction, but the scope and validity of any patent or patent application will be governed by the applicable laws of the country of such patent or patent application.

20. **DISPUTE RESOLUTION**

20.1 **Executive Resolution**. The parties shall initially seek amicably to settle all disputes (each, a "**Dispute**") arising out of or in connection with this Agreement by negotiation, which may include discussion at the JSC, subject to the Parties' respective final decision making authority as set forth in Section 3.3(f) of the Research Agreement. If, within [*] after written notice by either Party of the existence of a Dispute, the Parties do not resolve such Dispute, then the Dispute shall be referred to the Designated Executive Officers from each Party for further negotiation. If the Designated Executive Officers of each Party cannot resolve such Dispute, then subject to Section 3.3(f) of the Research Agreement and Section 20.7 of this Agreement, such Dispute will be referred to final binding arbitration in accordance with Sections 20.2 through 20.6.

20.2 **Arbitration**. Any Dispute referred for arbitration shall be finally settled under the Rules of the International Centre for Dispute Resolution (the "**Rules of Arbitration**") then in force, by one arbitrator appointed in accordance with such Rules of Arbitration. The Arbitral Tribunal shall be guided by the IBA Rules on the Taking of Evidence in International Arbitration, and there shall be no depositions. The place of the arbitration shall be New York, New York, United States of America. The language of the arbitration shall be English.

20.3 **Selection of the Arbitrator**. Each arbitrator shall have a [*] of experience in arbitrating disputes in the pharmaceutical industry, or of pharmaceutical licensing disputes and be admitted to practice law in the United States of America. The arbitrator conducting the arbitration must and shall agree to render an award within [*] after the final hearing. The arbitrator [*]. Without limiting any other remedies that may be available under Applicable Laws, the arbitrator shall have [*].

20.4 **Conduct of the Arbitration**. The Parties undertake to keep confidential all awards in their arbitration, together with all materials in the proceedings created for the purpose of the arbitration and all other documents produced by another Party in the proceedings not otherwise in the public domain, save and to the extent that disclosure may be required of a Party by legal duty or under Applicable Law, the rules and regulations of any stock exchange or quotation services on which such Party's stock is traded or quoted, to protect or pursue a legal right or to enforce or challenge an award in legal proceedings before a court or other judicial authority.

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20.5 **Continued Performance**. Unless otherwise agreed in writing, the Parties will continue to perform their respective obligations under this Agreement during any arbitration or court proceeding seeking enforcement of an arbitral decision or award, and, unless this Agreement is in its entirety deemed null and void or is otherwise revoked or rescinded in its entirely, the Parties shall continue to perform their respective remaining obligations under this Agreement, and may continue to exercise their respective remaining rights and remedies thereunder, following any arbitration.

20.6 **Preliminary Injunctions**. Notwithstanding anything in this Agreement to the contrary, a Party may seek a temporary restraining order or a preliminary injunction from any court of competent jurisdiction in order to prevent immediate and irreparable injury, loss, or damage on a provisional basis, pending the decision of the arbitrator(s) on the ultimate merits of any Dispute.

20.7 **Patent Disputes**. Notwithstanding anything in this Agreement to the contrary, any dispute concerning inventorship that is not resolved within [*] following notice by one Party to the other Party of the creation or reduction to practice of any Invention, and any dispute regarding any and all issues regarding the scope, construction, validity, and enforceability of any patent or patent application (including whether or not such patent or patent application should be included in the Patent Rights under the License Agreement) in a country within the Territory shall be determined in a court or other governmental authority of competent jurisdiction under the applicable patent laws of such country.

21. COMPLIANCE WITH LAWS

21.1 The Licensee shall comply with all applicable international, national, state, regional and local laws and regulations in performing its obligations hereunder and in its use, manufacture, Sale or import of the Licensed Products. The Licensee will observe all applicable United States and foreign laws with respect to the transfer of Licensed Products and related technical data to foreign countries, including, without limitation, the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations.

22. CONFIDENTIALITY

22.1 **Confidential Information**. The Licensee and Institute will treat and maintain the other Party's Confidential Information in confidence using at least the same degree of care as the receiving Party uses to protect its own proprietary and confidential information of a like nature from the date of disclosure until seven (7) years after the termination or expiration of this Agreement, provided that a Party may designate one or more specific, defined items of Confidential Information as 'Trade Secret', by giving written notice to the other Party briefly outlining its reasons why longer protection is warranted, and in such case the other Party shall protect such information indefinitely unless and until Section 22.4 applies. Confidential Information can be written, oral, or both.

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22.2 **Relationship to Existing Confidentiality Agreement**. This Agreement supersedes that certain Confidential Disclosure Agreement entered into between Licensee and Institute, dated May 28, 2015 (the "**Existing Confidentiality Agreement**"); provided that all "Confidential Information" disclosed by the disclosing Party thereunder shall be deemed Confidential Information of the disclosing Party hereunder and shall be subject to the terms and conditions of this Agreement and the receiving Party thereunder shall be bound by and obligated to comply with such terms and conditions as if they were the receiving Party hereunder. The foregoing shall not be interpreted as a waiver of any remedies available to the disclosing Party as a result of any breach, prior to the Original Effective Date, by the receiving Party, respectively, of its obligations pursuant to the Existing Confidentiality Agreement.

22.3 **Permitted Disclosure**. The Licensee and Institute may use and disclose the other Party's Confidential Information to their Affiliates, employees, agents, consultants, contractors, and, in the case of the Licensee, its Sublicensees, in each case on a need to know basis for the purposes of such Affiliates, Sublicensees and Third Parties performing activities under this Agreement or the Research Agreement, provided that such parties are bound by a like duty of confidentiality as that found in this Article 22 (Confidentiality). Furthermore, Licensee may disclose Institute's Confidential Information to: (a) Licensee's potential or actual collaborators, partners, licensees and sublicensees, and (b) potential or actual investment bankers, acquirers, lenders or investors, and (c) advisors of Licensee or any of the foregoing in (a) and (b); each of whom, prior to disclosure, must be bound by similar obligations of confidentiality and non-use as set forth in this Article 22.

22.4 **Limitations**. Nothing contained herein will restrict or impair, in any way, the right of the Licensee or Institute to use or disclose any of the other Party's Confidential Information:

(a) that recipient can demonstrate by written records was previously known to it prior to its disclosure by the disclosing Party;

(b) that recipient can demonstrate by written records is now, or becomes in the future, public knowledge other than through acts or omissions of recipient;

(c) that recipient can demonstrate by written records was obtained lawfully and without restrictions on the recipient from sources independent of the disclosing Party; and

(d) that a Party is required to disclose pursuant to applicable law, rule or regulation.

The Licensee or Institute also may disclose Confidential Information that is required to be disclosed: (i) to a governmental entity or agency in connection with seeking any governmental or regulatory approval, governmental audit, or other governmental contractual requirement; or (ii) by law, provided that the recipient uses reasonable efforts to give the party owning the Confidential

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Information sufficient notice of such required disclosure to allow the party owning the Confidential Information reasonable opportunity to object to, and to take legal action to prevent, such disclosure. Notwithstanding anything to the contrary in this Agreement, Licensee may disclose Confidential Information it receives pursuant to this Agreement, to its actual or potential investors, acquirors, advisors, Sublicensees, consultants and employees who are bound by obligations of confidentiality with respect thereto.

22.5 **Return of Information**. Upon termination of this Agreement, or the request of the disclosing Party, if earlier, the Licensee and Institute will destroy or return any of the disclosing Party's Confidential Information in its possession within [*] following the termination of this Agreement and provide each other with prompt written notice that such Confidential Information has been returned or destroyed. Each Party may, however, retain one (1) copy of such Confidential Information for archival purposes in non-working files.

22.6 **Additional Confidentiality Obligations**. Upon written request of Licensee, Institute agrees to cooperate in good faith with Licensee and Memorial Sloan Kettering Cancer Center ("**MSK**") in order to enter into a mutually agreed tripartite confidentiality and non-disclosure agreement with Licensee and MSK, which agreement shall provide for the obligations of non-disclosure with respect to information shared between the Parties and MSK for the purposes of furthering the activities under this Agreement and the Research Agreement.

23. MISCELLANEOUS

23.1 **Headings**. The headings of the Sections are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

23.2 **Binding Agreement**. This Second Restated Agreement is not binding on the Parties until it has been signed below on behalf of each Party. It is then effective as of the Execution Date.

23.3 **Amendments**. No amendment or modification of this Agreement is valid or binding on the parties unless made in writing (identifying the provision that is amended or modified) and signed on behalf of each Party.

23.4 **Waiver**. No waiver by either Party of any breach or default of any of the agreements contained herein will be deemed a waiver as to any subsequent and/or similar breach or default. No waiver of this Agreement is valid or binding on the Parties unless made in writing (identifying the provision that is waived) and signed on behalf of each Party.

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23.5 **Entire Agreement**. This Agreement and the Research Agreement embody the entire understanding of the Parties and supersedes the Original License Agreement and the First Restated Agreement and all previous communications, representations or understandings, either oral or written, between the Parties relating to the subject matter hereof.

23.6 **Invalidity**. In case any of the provisions contained in this Agreement is held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect any other provisions of this Agreement and this Agreement will be construed as if such invalid, illegal or unenforceable provisions had never been contained in it.

23.7 **Independent Contractors**. In performing their respective duties under this Agreement, each of the Parties will be operating as an independent contractor. Nothing contained herein will in any way constitute any association, partnership, or joint venture between the Parties hereto, or be construed to evidence the intention of the Parties to establish any such relationship. Neither Party will have the power to bind the other Party or incur obligations on the other Party's behalf without the other Party's prior written consent.

23.8 **Construction**. Except where the context otherwise requires, wherever used, the use of any gender will be applicable to all genders, and the word "or" is used in the inclusive sense. When used in this Agreement, "including" means "including without limitation". References to either Party include the successors and permitted assigns of that Party. The Recitals are incorporated by reference into this Agreement. The headings of this Agreement are for convenience of reference only and in no way define, describe, extend or limit the scope or intent of this Agreement or the intent of any provision contained in this Agreement. The Parties have each consulted counsel of their choice regarding this Agreement, and, accordingly, no provisions of this Agreement will be construed against either Party on the basis that the Party drafted this Agreement or any provision thereof. The official text of this Agreement, any notice given or accounts or statements required by this Agreement, and any dispute proceeding related to or arising hereunder, will be in English. If any dispute concerning the construction or meaning of this Agreement arises, then reference will be made only to this Agreement as written in English and not to any translation into any other language.

23.9 **Counterparts**. This Second Restated Agreement may be executed in one or more counterparts, each of which together shall constitute one and the same Agreement. For purposes of executing this Second Restated Agreement, a facsimile (including a PDF image delivered via email) copy of this Second Restated Agreement, including the signature pages, will be deemed an original. The Parties agree that neither Party will have any rights to challenge the use or authenticity of a counterpart of this Second Restated Agreement based solely on that its signature, or the signature of the other Party, on such counterpart is not an original signature.

- Signature Page Follows -

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IN WITNESS WHEREOF, both Institute and the Licensee have executed this Second Restated Agreement by their respective and duly authorized officers on the day and year written below. The Parties acknowledge that the signature date may not be the Execution Date.

A**TARA BIOTHERAPEUTICS, INC.**	**THE COUNCIL OF THE QUEENSLAND INSTITUTE OF MEDICAL RESEARCH**
By: _____ (Signature)	By: _____ (Signature)
Name: _____ (Please Print)	Name: _____ (Please Print)
Title: _____	Title: _____
Date: _____	Date: _____

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Schedule 1.26

Competing Products

[*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Schedule 1.80

Patent Rights

[*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Schedule 2.5

Key Terms of Academic Collaboration Agreement

1. [*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Schedule 13.2

[*]

[*]= Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

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Exhibit 10.5

AMENDED AND RESTATED AMENDMENT NO. 2 TO DEVELOPMENT AND MANUFACTURING SERVICES AGREEMENT

This Amended and Restated Amendment No. 2 to the Development and Manufacturing Services Agreement ("**Amended and Restated Second Amendment**") is made and entered into, effective as of November 4, 2018 (the "**Amended and Restated Second Amendment Effective Date**"), by and between **Cognate BioServices, Inc.**, a Delaware corporation with an office at 7513 Connelly Drive, Suite I, Hanover, MD 21076 ("**Manufacturer**"), and **Atara Biotherapeutics, Inc.**, a Delaware corporation located at 611 Gateway Boulevard, Suite #900, South San Francisco, CA 94080 ("**Atara**"). Each of Atara and Manufacturer are referred to in this Amended and Restated Second Amendment as a "**party**" and together, the "**parties.**"

Background

WHEREAS, the Parties have entered into that certain Development and Manufacturing Services Agreement (the "**Original Services Agreement**") effective as of August 10, 2015 (the "**Effective Date**"), pursuant to which Atara engaged Manufacturer to perform certain process development and manufacturing services in relation to Atara's products, as further described in individual work orders entered into thereunder (the "**Services**", as further defined in the Services Agreement);

WHEREAS, the Parties entered into the First Amendment to the Services Agreement effective December 21, 2017 (the " **First Amendment**") to provide for Atara's [*] of certain Services at Manufacturer's facility;

WHEREAS, the Original Services Agreement, as amended by the First Amendment, is referred to in this Amended and Restated Second Amendment as the "**Services Agreement**"; and

WHEREAS, as of May 4, 2018 (the "**Second Amendment Effective Date**"), the Parties entered into the Second Amendment to the Services Agreement (the "**Second Amendment**") to further revise certain terms of the Services Agreement;

WHEREAS, the Parties have agreed to amend and restate the Second Amendment in its entirety to revise certain other terms of the Services Agreement as of the Amended and Restated Second Amendment Effective Date; and

WHEREAS, Section 15.7 of the Services Agreement provides that the Services Agreement may only be modified by a writing signed by authorized representatives of each Party.

NOW, THEREFORE, the Parties desire, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, to amend and restate the Second Amendment in its entirety as set forth in this Amended and Restated Second Amendment.

ARTICLE 1
DEFINITIONS

1.1 **Capitalized Terms**. Capitalized terms used in this Amended and Restated Second Amendment shall have the meanings set forth in the Services Agreement, as amended, unless otherwise defined in in this Amended and Restated Second Amendment. Except as expressly modified by this Amended and Restated Second Amendment, the remainder of the Services Agreement shall remain in force in accordance with its terms and without further modification.

ARTICLE 2
AMENDMENTS

2.1 **Amendment of Section 1.10**. Section 1.10 "Batch" of the Services Agreement is hereby amended in its entirety as follows:

1.10 "Batch" means a specific quantity of Product that is intended to be of uniform character and quality, within specified limits, and is produced during the same cycle of Manufacture as defined by the applicable Batch record. For clarity, the terms Product and Batch include [*] (in each case as specified in the applicable Work Order).

2.2 **Amendment of Section 1.14**. Section 1.14 "cGMP" of the Services Agreement is hereby amended in its entirety as follows:

1.14 "cGMP" means current good manufacturing practices and regulations applicable to the Manufacture of Product that are promulgated by the applicable Authority, as are applicable to the Product, (a) [*]and (b) [*][*].

2.3 **Addition of New Section 2.4**. Article 2 of the Services Agreement is hereby amended by adding new Section 2.4 (Commercial Supply Agreement) immediately following Section 2.3, as follows:

2.4 Commercial Supply Agreement. [*] following the Second Amendment Effective Date, the parties will negotiate in good faith a manufacture and supply agreement for the commercial production and supply of Product (the "CSA").

2.4 **Amendment of Section 3.2**. Section 3.2 (Communications) of the Services Agreement is hereby amended in its entirety as follows:

3.2 **Communications**.

(a) Operations Meetings; Production Forecasts. The parties will hold plant leadership team meetings via teleconference or in person, on a periodic basis as agreed upon by the Representatives. Notwithstanding the foregoing, the parties will hold a monthly meeting of the plant leadership team members from each party which shall be held in person, unless the parties mutually agree to hold such meeting by teleconference ("Operations Meeting"). In each Operations Meeting, Atara will provide a rolling written [*] Batch production demand forecast (such [*] forecast, the "Demand Forecast") so that Manufacturer can prepare a production schedule and plan for the purchase of the necessary raw materials and consumables to be provided by Manufacturer under the applicable Work Order. Subject to

the remainder of this Section 3.2, the Demand Forecast will be binding on Atara with respect to (i) [*]for production of the full number of Batches of Product set forth in such Demand Forecast (the "Committed Materials Costs"), and (ii) [*]. Atara will also provide to Manufacturer at each Operations Meeting, where reasonably practicable, a non-binding rolling estimated Batch demand forecast covering an additional [*](i.e. so that the total forecast covers a period of [*]). Atara will be required to (A) pay, [*]following delivery by Manufacturer of an invoice therefor, all Committed Materials Costs (i.e. all raw materials necessary to Manufacture [*]set forth in such Demand Forecast), less any amounts already paid by Atara (or that are the subject to invoices already issued by Manufacturer) for Prepaid Materials Costs and (B) execute work orders for the Manufacture of, and purchase [*]of the quantity (by number of Batches) of Product requested in each such Demand Forecast. For clarity, for any Committed Materials Costs that are also Prepaid Materials Costs that have been approved at an Operations Meeting, the payment terms applicable to Prepaid Materials Costs will govern. If Atara orders [*]set forth in the Demand Forecast, then any raw materials and supplies purchased by Manufacturer that have been paid for by Atara as Committed Materials Costs shall be held by Manufacturer and used for Manufacture of Batches ordered by Atara in subsequent periods (and covered by subsequent Demand Forecasts), provided that Manufacturer may, upon prior written notice to Atara, dispose of or destroy any such raw materials that are outside their shelf life, or are otherwise unsuitable for use in Manufacture of subsequent Batches, [*] with respect to [*]. Manufacturer shall provide an update at each Operations Meeting of the quantity of raw materials and supplies that have been paid for by Atara as Committed Materials Costs and are being held for application against subsequent production. The Updated Financial Terms in Section 2 of Exhibit F sets forth the price and payment terms applicable to each of such Batches of Product Manufactured on and after the Second Amendment Effective Date (each such Batch for which Manufacture is commenced after the Second Amendment Effective Date, a "Price Adjusted Batch").

(b) Manufacturer Operations Meeting Reports. In each Operations Meeting, Manufacturer will provide (i) a report identifying the number of (A) Final Batch
Dispositions and any (B) [*]Batches produced in the preceding calendar month(s), (ii) a [*], (iii) a [*] forecast of expected costs of raw materials to be provided by Manufacturer under the applicable Work Order (the "Raw Materials Cost Forecast"), (iv) operational and quality metrics as may be mutually agreed to by the parties, and (v) as set forth in the applicable Work Order, such other reports as Atara may reasonably request from time to time. Each party will cover its own expenses with respect to the attendance of all Operations Meetings. Manufacturer will make written reports to Atara to the extent and as specified in the applicable Work Order and as required in connection with any Operations Meeting (including for the purposes of reporting on (i) through (v) of this Section 3.2(b)).

2.5 **Production Forecasts**. Without limiting Atara's obligations to provide the Demand Forecast (and the rolling non-binding forecast of production) at each Operations Meeting, as set forth above, within [*]following the Second Amendment Effective Date, Atara will provide to Manufacturer a non-binding forecast of its estimated production requirements for Product on a [*]during the [*]period immediately following the Second Amendment Effective Date, prepared in good faith and on reasonable grounds, and reflecting Atara's commercially reasonable estimate of its needs for Product over the applicable period.

2.6 **Amendment of Section 4.1**. Section 4.1 (Supply of Materials) of the Services Agreement is hereby amended in its entirety as follows:

4.1 **Supply of Materials**. Manufacturer will supply, in accordance with the payment schedule(s) included in the applicable Work Order and in accordance with the relevant approved raw material specifications, all materials to be used by Manufacturer in the performance of Services under a Work Order other than the Atara Materials specified in such Work Order. Without limiting the foregoing, any such materials that the parties, at an Operations Meeting, mutually agree require prepayment will be subject to the Updated Financial Terms set forth in Section 2 of Exhibit F. Atara or its designees will provide Manufacturer with the Atara Materials in accordance with the schedule established at the applicable Operations Meeting. Manufacturer agrees (a) to acknowledge receipt of all Atara Materials received; (b) not to provide Atara Materials to any third party without the express prior written consent of Atara; (c) not to use Atara Materials for any purpose other than conducting the Services, and without limiting the generality of the foregoing, will not analyze, characterize, modify or reverse engineer any Atara Materials or take any action to determine the structure or composition of any Atara Materials unless required pursuant to a signed Work Order (or necessary to confirm that all applicable standards are met, solely in connection with an Investigational Process and with Atara's prior written consent); and (d) to destroy or return to Atara all unused quantities of Atara Materials according to Atara's written directions and at Atara's sole cost and expense.

2.7 **Amendment of Section 6.2**. Section 6.2 (Provision of Records) of the Services Agreement is hereby amended it its entirety as follows:

6.2 **Provision of Records**. If, based upon such tests and documentation review, a Batch of Product conforms to the Specifications and was Manufactured according to cGMP

(if applicable) and the Manufacturing Process, then a Certificate of Compliance (or other applicable disposition form) will be completed and approved by the quality assurance department of Manufacturer. Batches for which Manufacture commenced prior to the Second Amendment Effective Date will be invoiced in accordance with the applicable Work Order and Price Adjusted Batches will be invoiced in accordance with Sections 7 and 8 of the Updated Financial Terms in Exhibit F. This Certificate of Compliance (or other applicable disposition form), a Certificate of Analysis, the Specifications, and a complete and accurate copy of the Batch records including those items set forth on Exhibit E (collectively, the "Batch Documentation") for each Batch of Product will be delivered by Manufacturer to Atara electronically.

2.8 **Amendment of Section 6.3**. (Review of Batch Documentation) of the Services Agreement is hereby amended it its entirety as follows:

6.3 **Review of Batch Documentation**. Each party will review the Batch Documentation for each Batch of Product and may test samples of the Batch of Product against the Specifications. Atara will notify Manufacturer in writing of its acceptance or rejection of such Batch based on [*] commencing upon Atara's receipt of the Batch Documentation relating to such Batch. Each party will use commercially reasonable efforts to review the Batch Documentation within [*] following receipt. During this review

period, the parties agree to respond promptly, but in any event within [*], to any reasonable inquiry or request for a correction or change by the other party with respect to such Batch Documentation.

2.9 **Amendment of Section 6.5**. Section 6.5 (Disputes) of the Services Agreement is hereby retitled as "**Non-Conforming Product; Disputes**" and is amended in its entirety as follows:

6.5 **Non-Conforming Product; Disputes**.

(a) Upon Atara's receipt and review of the Batch Documentation within the time period set forth in Section 6.3, Atara shall in accordance with Section 6.3 notify Manufacturer in writing if Atara believes, in good faith and based on reasonable grounds that any Batch (i) fails to conform to the Specifications, (ii) was not Manufactured in compliance with cGMP (if applicable) or (iii) was not Manufactured in compliance with the Manufacturing Process (as modified by any Planned Deviations, if any, that were preapproved in writing by Atara) (such Batch, a "Non-Conforming Batch"). Non-Conforming Batches shall be addressed in accordance with the remainder of this Section 6.5 and Section 6.6.

(b) If a Batch is a Non-Conforming Batch, then a root cause analysis on such Non-Conforming Batch will be undertaken in accordance with subsection (c) below (the "Investigational Process"). [*] for Product that is a Non-Conforming Batch within the time frame required under the applicable Work Order, with the remainder of such invoiced amount held pending the determination of an Investigational Process. Payment of an invoice by Atara will not constitute a waiver of remedies available to Atara under Section 6.6, except for claims that a Batch is or was a Non-Conforming Batch where Product in such Batch is or was approved for Final Disposition (as defined in Exhibit E).

(c) Without limiting subsection (b) above, the parties agree that any Non-Conforming Batch (or where the parties cannot agree, any Batch that either party believes to be Non-Conforming) will first be reviewed through the Investigational Process by a joint "Investigation Team" made up of [*]. If the Investigation Team is unable to make a determination of the root cause within [*] following identification of the Non-Conforming Batch (or submission of a disputed Batch to the Investigational Process for determination of whether it is Non-Conforming), an analysis and review will be performed by the joint "Materials Review Board." The Materials Review Board shall [*]. Either Party may make changes to their members on the Materials Review Board at any time on written notice to the other party, provided that any such replacement shall be of equivalent experience and seniority. This Materials Review Board shall be responsible for making the determination of the root cause. If the Materials Review Board cannot agree as to the root cause of the non-conformance in the Non-Conforming Batch and believe that additional investigational processes are needed to make such determination, the Parties may mutually agree to conduct such additional investigations and to return such Non-Conforming Batch for consideration by the joint Materials Review Board with the results of such additional investigations, if any. If the Materials Review Board cannot agree on the root cause (with or in absence of such additional investigations) within [*] following its first consideration (or such further consideration if additional investigations are conducted), then any dispute shall be referred for final binding resolution to a [*](the "Quality Expert"). The parties

will mutually agree on the Quality Expert, or if unable to agree, each party will [*]with which neither party has an existing or prior contractual relationship, to serve as the Quality Expert and one of such candidates will be selected, at random (in a blind drawing), to serve as the Quality Expert. Each candidate proposed to serve as such Quality Expert shall have [*]. As necessary or appropriate to permit the Quality Expert to evaluate the root cause of the non-conformance and make a determination, the parties will provide the Quality Expert with the defined terms, [*]), and the Batch Documentation. The Quality Expert will make a determination as to [*]for the Batch. Notwithstanding the foregoing, if the Quality Expert determines that [*]selected by the Quality Expert from among the approved or qualified vendors utilized in the Manufacture of Product. The determination of the root cause by such Quality Expert shall occur within [*]of receiving the necessary information from the joint Materials Review Board[*]. The decision of the Quality Expert will be final and binding on the parties absent manifest error, provided that a failure by any Quality Expert to reach a determination within such [*] shall not render such decision invalid or unenforceable. [*]. If, however, the Quality Expert cannot establish the root cause of the non-conformance ([*].

(d) Following Investigation Team and/or Materials Review Board review and/or Quality Expert analysis set forth in subsection (c) above:

(i) A Non-Conforming Batch is a "Manufacturer Non-Conforming Batch" [*].

(ii) A Non-Conforming Batch is an "Atara Non-Conforming Batch" [*].

(e) If a Non-Conforming Batch is finally determined pursuant to this Section 6.5 (by agreement of the parties, through the Materials Review Board or the Quality Expert, as applicable) to be (i) a Manufacturer Non-Conforming Batch, then Section 6.6(a) shall apply or (ii) an Atara Non-Conforming Batch, then Section 6.6(b) shall apply.

(f) In addition to carrying out the Investigational Process, the parties will meet to discuss, evaluate and analyze the implications of the failure to comply with the Specifications, cGMP (if applicable) and/or the Manufacturing Process and will decide whether to proceed with or to amend the applicable Work Order via a Change Order, or to terminate such Work Order.

(g) Following the execution of this Amended and Restated Second Amendment, [*]. For clarity, in the absence of any other written agreement between the parties, the parties will [*].

2.10 **Amendment of Section 6.6**. Section 6.6 is hereby retitled as "**Remedies for Non-Conforming Product**", and is hereby amended in its entirety as follows:

6.6 **Remedies for Non-Conforming Product**.

(a) If the parties agree or if determined in accordance with Section 6.5 above that a Batch of Product is a Manufacturer Non-Conforming Batch then, Manufacturer will, [*]:

[*]

For clarity, performance by Manufacturer, [*], of the remedy under (i) or (ii) satisfies Manufacturer's obligations in respect of any Manufacturer Non-Conforming Batch.

(b) If the parties agree or if determined in accordance with Section 6.5 above that a Batch of Product is an Atara Non-Conforming Batch, then Atara will [*], and shall [*] after completion of the Investigational Process. Atara will pay Manufacturer the fees, costs and expenses for such Atara Non-Conforming Batch [*], and Atara will not be entitled to the remedies set forth in Section 6.6(a).

(c) For clarity, unless the Non-Conforming Batch is determined to be a Manufacturer Non-Conforming Batch pursuant to Section 6.5, and without limiting Section 6.5(g), Manufacturer will not be responsible for [*]under clause (a)(i) of this Section 6.6 [*]under clause (a)(ii) of this Section 6.6.

2.11 **Amendment of Section 8.1**. Section 8.1 (Price) of the Services Agreement is hereby amended in its entirety as follows:

8.1 **Price**. The price of Product and/or the fees and expenses for the performance of Services will be set forth in the applicable Work Order; provided that for all Price Adjusted Batches, the price of Product and the fees and expenses for the performance of Services in connection with such Price Adjusted Batch will be governed by Sections 7 and 8 of the Updated Financial Terms set forth in Exhibit F, unless the applicable Work Order expressly states its intention to supersede the Updated Financial Terms. All dollar ($) amounts specified in this Agreement are United States dollar amounts and all payments to be made under this Agreement will be made in United States dollars.

2.12 **Amendment to Section 14.1**. Section 14.1 of the Services Agreement is hereby amended in its entirety as follows:

14.1 Term. This Agreement will take effect as of the Effective Date and, unless earlier terminated pursuant to this Article 14 or superseded by a CSA, [*].

2.13 **Addition of Exhibit E**. Exhibit E ("Batch Disposition Requirements") added to the Services Agreement in the form agreed as of the Second Amendment Effective Date and attached as Appendix 1 to this Amended and Restated Second Amendment remains in effect.

2.14 **Addition of Exhibit F**. Exhibit F ("Updated Financial Terms") added to the Services Agreement in the form agreed as of the Second Amendment Effective Date is amended and restated as set forth in the attached Appendix 2 to this Amended and Restated Second Amendment. The Updated Financial Terms shall only apply to Price Adjusted Batches. To the extent the Updated Financial Terms conflict with the payment terms set forth in the Work Order by and between Atara and Manufacturer with an effective date of August 7, 2015, as subsequently modified by a Change Order effective as of March 21, 2016 and amended on June 20, 2016 ("Work Order 1"), the Updated Financial Terms shall govern with respect to all payments for Price Adjusted Batches.

ARTICLE 3
MISCELLANEOUS

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

3.1 **No Waiver**. Nothing in this Amended and Restated Second Amendment is intended to operate as a waiver of any claims either Party may have against the other Party arising prior to the date of this Amended and Restated Second Amendment with respect to the performance of the Services or otherwise under the Services Agreement, provided that Atara shall have no right to make a claim for refund or replacement under Section 6.6 (as amended by the Second Amendment and as amended and restated herein) on the basis of Non-Conformance in connection with any Batch approved by Atara for disposition or final disposition prior to the date hereof, and all of such claims are waived and extinguished upon execution of this Amended and Restated Second Amendment. For clarity, the waiver in the preceding sentence does not affect the discount set forth in Section 4 of the Updated Financial Terms set forth in Exhibit F. Any delay in enforcing a Party 's rights under this Amended and Restated Second Amendment or the Services Agreement, or any waiver as to a particular default or other matter, will not constitute a waiver of such Party's rights to the future enforcement of its rights under this Amended and Restated Second Amendment or the Services Agreement, except with respect to an express written waiver relating to a particular matter for a particular period of time signed by an authorized representative of the waiving Party, as applicable.

3.2 **Miscellaneous**. This Amended and Restated Second Amendment is governed by and interpreted in accordance with the laws of the State of New York, U.S.A., without reference to the principles of conflicts of laws. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to the transactions contemplated by this Amended and Restated Second Amendment. Except as specifically amended by this Amended and Restated Second Amendment, the terms and conditions of the Services Agreement shall remain in full force and effect. This Amended and Restated Second Amendment may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Except to the extent expressly provided herein, the Services Agreement, as amended by the Second Amendment, and this Amended and Restated Second Amendment, including all appendices, exhibits and schedules to each of the foregoing, together with all Work Orders executed by the Parties, constitute the entire agreement between the Parties relating to the subject matter of the Services Agreement and supersede all previous oral and written communications, including all previous agreements, between the Parties.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, Manufacturer and Atara have executed this Amended and Restated Second Amendment by their respective officers hereunto duly authorized, on the day and year hereinafter written. The Parties acknowledge and agree that the signature date may not be the Amended and Restated Second Amendment Effective Date.

Cognate BioServices, Inc.

By: /[*]

Name: [*]

Title: [*]

Atara Biotherapeutics, Inc.

By: /[*]

Name: [*]

Title: [*]

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Appendix 1

Exhibit E (to Services Agreement)

[*]

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Appendix 2

Exhibit F (to Services Agreement)

[*]

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Schedule 1

[*]

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Schedule 2

[*]

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Schedule 3

[*]

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

[*] = Certain confidential information contained in this document, marked by brackets, is omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

Exhibit 10.6

AMENDMENT NO. 3 TO DEVELOPMENT AND MANUFACTURING SERVICES AGREEMENT

This Amendment No. 3 to the Development and Manufacturing Services Agreement (" **Third Amendment**") is made and entered into as of the date of last signature below (the "**Execution Date**"), but effective as of June 28, 2019 (the "**Third Amendment Effective Date**") by and between **ATARA BIOTHERAPEUTICS, INC.**, a Delaware corporation with offices at 611 Gateway Boulevard, Suite 900, South San Francisco, California 94080 ("**Atara**"); and **COGNATE BIOSERVICES INC.,** a Delaware corporation with offices at 4600 East Shelby Drive, Suite 108, Memphis, TN 38118 ("**Manufacturer**"). Each of Atara and Manufacturer are referred to in this Third Amendment as a " **Party**" and together, the " **Parties**." All capitalized terms used, but not otherwise defined herein, shall have the same meaning ascribed to them in the Services Agreement (as defined below).

BACKGROUND

WHEREAS, the Parties have entered into that certain Development and Manufacturing Services Agreement (the " **Original Services Agreement**") effective as of August 10, 2015, pursuant to which Atara engaged Manufacturer to perform certain process development and manufacturing services in relation to Atara's products, as further described in individual work orders entered into thereunder (the "**Services**", as further defined in the Services Agreement);

WHEREAS, the Parties entered into the First Amendment to the Original Services Agreement effective December 21, 2017 (the " **First Amendment**") to provide for Atara's [*] certain Services at Manufacturer's facility;

WHEREAS, the Parties entered into the Second Amendment to the Original Services Agreement effective May 4, 2018, and subsequently amended and restated effective November 4, 2018 (collectively, the "**Amended and Restated Second Amendment**") to further revise certain terms of the Services Agreement;

WHEREAS, the Original Services Agreement, as amended by the First Amendment and the Amended and Restated Second Amendment, is referred to in this Third Amendment as the "**Services Agreement**";

WHEREAS, the Parties have agreed to further amend the Services Agreement to revise certain other terms of the Services Agreement; and

WHEREAS, Section 15.7 of the Services Agreement provides that the Services Agreement may only be modified by a writing signed by authorized representatives of each Party.

NOW, THEREFORE, the Parties desire, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, to amend the Services Agreement as set forth in this Third Amendment.

1. Section 1 in Exhibit F (to Services Agreement), [*], is hereby deleted in its entirety and replaced as follows:

"1. [*]

2. The Parties acknowledge and agree that pursuant to the [*] Atara Cognate Operating Review, the [*].

3. Schedule 2, [*], to the Amended and Restated Second Amendment is hereby deleted in its entirety and replaced with Exhibit A attached to this Third Amendment.

4. The Parties acknowledge and agree that as of the Execution Date, Atara has [*], in accordance with the terms of the Services Agreement, and upon execution of this Third Amendment, Manufacturer shall invoice Atara [*], which reflect [*] following the Third Amendment Date.

5. This Third Amendment is governed by and interpreted in accordance with the laws of the State of New York, U.S.A., without reference to the principles of conflicts of laws. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to the transactions contemplated by this Third Amendment. Except as specifically amended by this Third Amendment, the terms and conditions of the Services Agreement shall remain in full force and effect. This Third Amendment may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Except to the extent expressly provided herein, the Services Agreement, as amended by this Third Amendment, including all appendices, exhibits and schedules to each of the foregoing, together with all Work Orders executed by the Parties, constitute the entire agreement between the Parties relating to the subject matter of the Services Agreement and supersede all previous oral and written communications, including all previous agreements, between the Parties.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the undersigned have executed this Amendment as of the last date of party-signature written below.

ATARA BIOTHERAPEUTICS, INC.

By: [*]

Print Name: [*]

Title: [*]

Date:

COGNATE BIOSERVICES, INC.

By: [*]

Print Name: [*]

Title: [*]

Date:

Exhibit A

Schedule 2

[*]

Exhibit 31.1

CERTIFICATION OF THE CHIEF EXECUTIVE OFFICER

PURSUANT TO

SECURITIES EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)

I, Pascal Touchon, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Atara Biotherapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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 and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 7, 2019

/s/ Pascal Touchon
Pascal Touchon
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF THE PRINCIPAL FINANCIAL AND ACCOUNTING OFFICER

PURSUANT TO

SECURITIES EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)

I, Utpal Koppikar certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Atara Biotherapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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 and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 7, 2019

/s/ Utpal Koppikar
Utpal Koppikar
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Atara Biotherapeutics, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2019, as filed with the Securities and Exchange Commission (the "Report"), Pascal Touchon, Chief Executive Officer of the Company, and Utpal Koppikar, Chief Financial Officer of the Company, respectively, do each hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

Date: November 7, 2019

/s/ Pascal Touchon
Pascal Touchon
Chief Executive Officer
(Principal Executive Officer)

/s/ Utpal Koppikar
Utpal Koppikar
Chief Financial Officer
(Principal Financial and Accounting Officer)

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.