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

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2019

OR

o 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: 001-36783

BELLICUM PHARMACEUTICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**2836**	**20-1450200**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

2130 W. Holcombe Blvd., Ste. 800
Houston, TX 77030
(832) 384-1100
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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

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

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

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** x **No** o

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	o	Accelerated filer	x
Non-accelerated filer	o	Smaller reporting company	x
Emerging growth company	x		

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. x

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). **Yes** o **No** x
As of April 30, 2019, there were 46,009,066 outstanding shares of Bellicum's common stock, par value, $0.01 per share.

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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

Bellicum Pharmaceuticals, Inc.
Condensed Consolidated Balance Sheets
(In thousands, except share and par value amounts)

	March 31, 2019 (Unaudited)	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 42,274	$ 43,695
Investment securities, available for sale - short-term	31,210	49,304
Accounts receivable, interest and other receivables	947	909
Prepaid expenses and other current assets	2,254	1,387
Total current assets	76,685	95,295
Right-of-use assets	4,655	—
Property and equipment, net	19,189	20,878
Restricted cash	4,585	4,973
Other assets	3,054	355
TOTAL ASSETS	$ 108,168	$ 121,501
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,027	$ 3,774
Accrued expenses and other current liabilities	10,389	8,589
Current portion of lease liability	1,282	40
Current portion of deferred revenue	2,467	2,983
Current portion of deferred rent	—	418
Total current liabilities	16,165	15,804
Long-term liabilities:		
Long-term debt, net of deferred financing costs	36,050	35,832
Long-term lease liability	5,093	91
Deferred rent	—	1,296
TOTAL LIABILITIES	57,308	53,023
Commitments and contingencies: (Note 14)		
Stockholders' equity:		
Preferred stock: $0.01 par value; 10,000,000 shares authorized: no shares issued and outstanding	—	—
Common stock, $0.01 par value; 200,000,000 shares authorized at March 31, 2019 and December 31, 2018, 45,643,060 shares issued and 44,965,597 shares outstanding at March 31, 2019; 44,242,059 shares issued and 43,564,596 shares outstanding at December 31, 2018	456	442
Treasury stock: 677,463 shares held at March 31, 2019 and December 31, 2018	(5,056)	(5,056)
Additional paid-in capital	500,601	493,784
Accumulated other comprehensive loss	(65)	(144)
Accumulated deficit	(445,076)	(420,548)
Total stockholders' equity	50,860	68,478
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 108,168	$ 121,501

See accompanying notes, which are an integral part of these unaudited consolidated financial statements.

Bellicum Pharmaceuticals, Inc.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(In thousands, except share and per share amounts)

(Unaudited)

	Three months ended March 31,	
	2019	**2018**
REVENUES		
Grants	$ 516	$ 154
Total revenues	516	154
OPERATING EXPENSES		
Research and development	16,818	16,536
License fees	30	30
General and administrative	7,536	5,692
Total operating expenses	24,384	22,258
Loss from operations	(23,868)	(22,104)
OTHER INCOME (EXPENSE):		
Interest income	410	267
Interest expense	(1,070)	(1,003)
Total other expense	(660)	(736)
NET LOSS	$ (24,528)	$ (22,840)
Net loss per common share attributable to common shareholders, basic and diluted	$ (0.55)	$ (0.68)
Weighted-average shares outstanding, basic and diluted	44,243,896	33,456,446
Net loss	$ (24,528)	$ (22,840)
Other comprehensive income (loss):		
Unrealized gain (loss) on investment securities	51	(58)
Foreign currency translation adjustment	28	—
Comprehensive loss	$ (24,449)	$ (22,898)

See accompanying notes, which are an integral part of these unaudited consolidated financial statements.

Bellicum Pharmaceuticals, Inc.
Condensed Consolidated Statements of Stockholders' Equity
Three Months Ended March 31, 2019 and 2018

Three months ended March 31, 2019 (amounts in thousands, except share data)

	Common Stock		Treasury Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance, December 31, 2018	44,242,059	$ 442	(677,463)	$ (5,056)	$ 493,784	$ (420,548)	$ (144)	$ 68,478
Share-based compensation	—	—	—	—	2,136	—	—	2,136
Exercise of stock options	27,647	—	—	—	70	—	—	70
Issuance of common stock upon vesting of restricted stock units	22,702	—	—	—	—	—	—	—
Issuance of common stock in open market transactions, net of issuance costs	1,350,652	14	—	—	4,611	—	—	4,625
Comprehensive loss	—	—	—	—	—	(24,528)	79	(24,449)
Balance, March 31, 2019	45,643,060	$ 456	(677,463)	$ (5,056)	$ 500,601	$ (445,076)	$ (65)	$ 50,860

Three months ended March 31, 2018 (amounts in thousands, except share data)

	Common Stock		Treasury Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance, December 31, 2017	33,962,640	$ 340	(677,463)	$ (5,056)	$ 411,922	$ (322,512)	$ (46)	$ 84,648
Share-based compensation	—	—	—	—	3,605	—	—	3,605
Exercise of stock options	313,258	3	—	—	825	—	—	828
Issuance of common stock upon vesting of restricted stock units	12,658	—	—	—	—	—	—	—
Comprehensive loss	—	—	—	—	—	(22,840)	(58)	(22,898)
Balance, March 31, 2018	34,288,556	$ 343	(677,463)	$ (5,056)	$ 416,352	$ (345,352)	$ (104)	$ 66,183

See accompanying notes, which are an integral part of these unaudited consolidated financial statements.

Bellicum Pharmaceuticals, Inc.
Condensed Consolidated Statements of Cash Flows
(In thousands)
(Unaudited)

	Three months ended March 31,	
	2019	**2018**
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$ (24,528)	$ (22,840)
Adjustments to reconcile net loss to net cash used in operating activities:		
Share-based compensation	2,136	3,605
Depreciation expense	1,787	1,426
Amortization of (discount) premium on investment securities, net	(18)	91
Amortization of right-of-use assets	312	—
Accretion of lease liability	133	(58)
Amortization of deferred financing costs	218	219
Changes in operating assets and liabilities:		
Receivables	(38)	(101)
Prepaid expenses and other assets	(1,322)	71
Accounts payable	(1,752)	(1,271)
Accrued liabilities and other	(968)	340
Deferred revenue	(516)	(154)
NET CASH USED IN OPERATING ACTIVITIES	(24,556)	(18,672)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of investment securities	—	(6,312)
Proceeds from sale of investment securities	18,163	17,275
Purchases of property and equipment	(131)	(416)
NET CASH PROVIDED BY INVESTING ACTIVITIES	18,032	10,547
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from stock offering, net of offering costs	4,625	—
Proceeds from exercise of stock options	70	828
Payment on financing lease obligations	(8)	(7)
NET CASH PROVIDED BY FINANCING ACTIVITIES	4,687	821
EFFECT OF EXCHANGE RATE CHANGES ON CASH	28	—
NET CHANGE IN CASH, CASH EQUIVALENTS AND RESTRICTED CASH	(1,809)	(7,304)
CASH, CASH EQUIVALENTS AND RESTRICTED CASH AT BEGINNING OF PERIOD	48,668	45,029
CASH, CASH EQUIVALENTS AND RESTRICTED CASH AT END OF PERIOD	$ 46,859	$ 37,725
SUPPLEMENTAL CASH FLOW INFORMATION:		
Interest paid	$ 857	$ 784
NON-CASH INVESTING AND FINANCING ACTIVITIES:		
Purchases of property and equipment in accounts payables and accrued liabilities	$ 5	$ 219

See accompanying notes, which are an integral part of these unaudited consolidated financial statements.

NOTE 1 - ORGANIZATION AND BUSINESS DESCRIPTION

Bellicum Pharmaceuticals, Inc., or Bellicum, was incorporated in Delaware in July 2004 and is based in Houston, Texas. Bellicum is a clinical stage biopharmaceutical company focused on discovering and developing novel cellular immunotherapies for various forms of cancer, including both hematological cancers and solid tumors, as well as orphan inherited blood disorders. Bellicum is devoting substantially all of its present efforts to developing next-generation product candidates in some of the most important areas of cellular immunotherapy, including CAR T and hematopoietic stem cell transplantation.

In 2017, Bellicum formed two wholly-owned subsidiaries, Bellicum Pharma Limited, a private limited company organized under the laws of the United Kingdom, and Bellicum Europe GmbH, a private limited liability company organized under Swiss law. In 2018, Bellicum formed Bellicum Pharma GmbH, a wholly-owned private limited liability company organized under German law. All were formed for the purpose of developing product candidates in Europe. Bellicum, Bellicum Pharma Limited, Bellicum Europe GmbH and Bellicum Pharma GmbH are collectively referred to herein as the “Company”.

NOTE 2 - BASIS OF PRESENTATION

The interim condensed consolidated financial statements have been prepared on a going concern basis, which assumes the Company will continue to realize its assets and discharge its liabilities in the normal course of business. The continuation of the Company as a going concern is dependent upon the ability of the Company to obtain necessary funding to continue operations. As of March 31, 2019, the Company has incurred an accumulated deficit of $445.1 million since inception and has not yet generated any revenue from operations. Additionally, the Company continues to expend cash to continue its research and development efforts. Management anticipates that its cash on hand as of March 31, 2019, grants and other cash inflows will be insufficient to fund its operations within one year from the financial statement issuance date and therefore, substantial doubt about the entity’s ability to continue as a going concern exists. These consolidated financial statements do not include any adjustments to the recoverability and classification of recorded asset amounts and classification of liabilities that might be necessary should the Company be unable to continue as a going concern. The Company may seek additional funding through a combination of equity offerings, debt financings, government or other third-party funding, commercialization, marketing and distribution arrangements, other collaborations, strategic alliances and licensing arrangements and delay planned cash outlays or a combination thereof. Management cannot be certain that such events or a combination thereof can be achieved.

The accompanying interim condensed consolidated financial statements are unaudited. These unaudited interim condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP, and follow the requirements of the U.S. Securities and Exchange Commission, or the SEC for interim reporting. As permitted under those rules, certain footnotes or other financial information that are normally required by GAAP have been omitted. In management’s opinion, the unaudited interim condensed consolidated financial statements have been prepared on the same basis as the audited financial statements and include all adjustments necessary for the fair presentation of the Company’s financial position and its results of operations and its cash flows for the periods presented. All such adjustments are normal and recurring in nature. These statements should be read in conjunction with the Company's Annual Report on Form 10-K filed for the fiscal year ended December 31, 2018, or the Annual Report. A copy of the Annual Report is available on the SEC’s website, www.sec.gov, under the Company’s ticker symbol “BLCM” or on Bellicum’s website, www.bellicum.com. The results for the interim periods are not necessarily indicative of the results expected for the full fiscal year or any other interim period. Any reference in these footnotes to applicable guidance is meant to refer to GAAP as found in the Accounting Standards Codification, or ASC, and Accounting Standards Update, or ASU, of the Financial Accounting Standards Board, or the FASB.

The Company is subject to risks common to companies in the biotechnology industry and the future success of the Company is dependent on its ability to successfully complete the development of, and obtain regulatory approval for, its product candidates, manage the growth of the organization, obtain additional financing necessary in order to develop, launch and commercialize its product candidates, and compete successfully with other companies in its industry.

NOTE 3 - SIGNIFICANT ACCOUNTING POLICIES

Use of Estimates

The preparation of the interim condensed consolidated financial statements in accordance with GAAP requires management to make certain estimates and judgments that affect the reported amounts of assets, liabilities, and expenses. Actual results could differ from those estimates.

Consolidation

All financial information presented includes the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

Revenue Recognition

The Company has not yet generated any revenue from product sales. The Company's source of revenue for the three months ended March 31, 2019 and 2018 has been from grants. When grant funds are received after costs have been incurred, the Company accrues revenue and records a grant receivable. Cash received from grants in advance of incurring qualifying costs is recorded as deferred revenue and recognized as revenue when qualifying costs are incurred.

Cash and Cash Equivalents

The Company considers all short-term, highly liquid investments with maturity of three months or less from the date of purchase to be cash equivalents.

Investment Securities

Consistent with its investment policy, the Company invests its cash allocated to fund its short-term liquidity requirements with prominent financial institutions in bank depository accounts and institutional money market funds. The Company invests the remainder of its cash in corporate debt securities and municipal bonds rated at least A quality or equivalent, U.S. Treasury notes and bonds and U.S. and state government agency-backed securities.

The Company determines the appropriate classification of investment securities based on whether they represent the investment of funds available for current operations, as defined in ASC 210-10-45-1 and ASC 210-10-45-2. The Company reevaluates its classification as of each balance sheet date. All investment securities owned are classified as available-for-sale. The cost of securities sold is based on the specific identification method. Investment securities are recorded as of each balance sheet date at fair value, with unrealized gains and, to the extent deemed temporary, unrealized losses reported as accumulated other comprehensive gain (loss), a separate component of stockholders' equity. Interest and dividend income on investment securities, accretion of discounts and amortization of premiums and realized gains and losses are included in interest income in the statements of operations and comprehensive income (loss).

An investment security is considered to be impaired when a decline in fair value below its cost basis is determined to be other than temporary. The Company evaluates whether a decline in fair value of an investment security is below its cost basis is other than temporary using available evidence. In the event that the cost basis of the investment security exceeds its fair value, the Company evaluates, among other factors, the amount and duration of the period that the fair value is less than the cost basis, the financial health of and business outlook for the issuer, including industry and sector performance, and operational and financing cash flow factors, overall market conditions and trends, the Company's intent to sell the investment security and whether it is more likely than not the Company would be required to sell the investment security before its anticipated recovery. If a decline in fair value is determined to be other than temporary, the Company records an impairment charge in the statement of operations and comprehensive loss and establishes a new cost basis in the investment.

Property and Equipment

Leasehold improvements, furniture, equipment and software are recorded at cost and are depreciated using the straight-line method over the estimated useful lives of the related assets, which range from three to five years. Leasehold improvements are amortized over the shorter of the estimated useful life or the remaining lease term.

Intangible Assets

Non-refundable upfront payments related to a supply agreement with future benefits have been capitalized as an intangible asset and amortized over the term of the agreement. The amortization of the intangible asset is included in operating expenses.

Debt Issuance Costs

Costs related to debt issuance are presented in the balance sheet as a direct deduction from the carrying amount of the debt liability, consistent with debt discounts and are amortized using the effective interest method. Amortization of debt issuance costs are included in interest expense.

Operating Leases

Operating leases are recognized as right of use, or ROU, assets and operating lease liabilities on the balance sheet. Any lease incentives received are deferred and recorded as a reduction of the ROU asset and amortized over the term of the lease. Rent expense, comprised of amortization of the ROU asset and the implicit interest accreted on the operating lease liability, is recognized on a straight-line basis over the lease term.

Fair Value of Financial Instruments

Accounting standards include disclosure requirements around fair values used for certain financial instruments and establish a fair value hierarchy. The three-tier hierarchy prioritizes valuation inputs into three levels based on the extent to which inputs used in measuring fair value are observable in the market, as described further in Note 5.

The Company believes the recorded values of its financial instruments, including cash and cash equivalents, accounts payable and accrued liabilities approximate their fair values due to the short-term nature of these instruments.

Financial Instruments and Credit Risks

Financial instruments that potentially subject the Company to credit risk include cash and cash equivalents, investment securities, and accounts receivable. Cash is deposited in demand accounts in federally insured domestic institutions to minimize risk. Insurance is provided through the Federal Deposit Insurance Corporation and Security Investor Protection Corporation. Although the balances in these accounts exceed the federally insured limit from time to time, the Company has not incurred losses related to these deposits.

Equity Issuance Costs

Equity issuance costs represent costs paid to third parties in order to obtain equity financing. These costs have been netted against the proceeds of the equity issuances.

Licenses and Patents

Licenses and patent costs for technologies that are utilized in research and development and have no alternative future use are expensed as incurred. Costs related to the license of patents from third parties and internally developed patents are classified as research and development expenses. Legal costs related to patent applications and maintenance are classified as general and administrative expenses.

Clinical Trials

The Company estimates its clinical trial expense accrual for a given period based on the number of patients enrolled at each site, estimated cost per patient, and the length of time each patient has been in the trial, less amounts previously billed. These accruals are recorded in accrued expenses and other current liabilities, and the related expense is recorded in research and development expense.

Research and Development

Research and development expenses consist of expenses incurred in performing research and development activities, including compensation and benefits for research and development employees and consultants, facilities expenses, overhead expenses, cost of laboratory supplies, manufacturing expenses, fees paid to third parties and other outside expenses.

Research and development costs are expensed as incurred. Clinical trial and other development costs incurred by third parties are expensed as the contracted work is performed. The Company accrues for costs incurred as the services are being provided by monitoring the status of the clinical trial or project and the invoices received from its external service providers. The Company estimates depend on the timeliness and accuracy of the data provided by the vendors regarding the status of each project and total project spending. The Company adjusts its accrual as actual costs become known. Where contingent milestone payments are due to third parties under research and development arrangements, the milestone payment obligations are expensed when the milestone events are achieved.

Collaboration Agreements

The Company enters into collaboration agreements that include varying arrangements regarding which parties perform and bear the costs of research and development activities. The Company may share the costs of research and development activities with a collaborator, or the Company may be reimbursed for all or a significant portion of the costs of the Company's research and development activities. The Company records its internal and third-party development costs associated with these collaborations as research and development expenses. When the Company is entitled to reimbursement of all or a portion of the research and development expenses that it incurs under a collaboration, the Company records those reimbursable amounts as a deduction to the research and development expenses. The Company also recognizes, as research and development expenses in the period when its collaborator incurs development expenses, the portion of the collaborator's development expenses that the Company is obligated to reimburse.

Contract Manufacturing Services

Contract manufacturing services are expensed as incurred. Prepaid expenses are capitalized and amortized as services are performed.

Share-Based Compensation

The Company accounts for its share-based compensation in accordance with ASC 718, *Compensation - Stock Compensation*, which requires the measurement and recognition of compensation expense for all share-based payment awards made to employees and directors to be recognized in the financial statements, based on their fair value. The Company measures share-based compensation to consultants in accordance with ASC 505-50, *Equity-Based Payments to Non-Employees*, and recognizes the fair value of the award over the period the services are rendered.

The Company uses the Black-Scholes option-pricing model to estimate the fair value of stock option awards. The fair value is recognized as expense, net of estimated forfeitures, over the requisite service period, which is generally the vesting period of the respective award on a straight-line basis.

Comprehensive Loss

Comprehensive income (loss) is defined as the change in equity of a business enterprise during a period, from transactions, and other events and circumstances from non-owner sources. Components of comprehensive income (loss) includes, among other items, unrealized gains and losses on the changes in fair value of investments. These components are added, net of their related tax effect, to the reported net income (loss) to arrive at comprehensive income (loss). The components of accumulated other comprehensive loss at March 31, 2019 and December 31, 2018, on the Company’s balance sheet was comprised of the net unrealized holding gains and losses on the Company’s investment securities and unrealized gains or losses arising from fluctuations in foreign currency exchange rates. See Note 5 for further detail of the unrealized holding gains and losses on the Company’s investment securities.

Net Loss and Net Loss per Share of Common Stock Attributable to Common Stockholders

Basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period without consideration for common stock equivalents.

The following outstanding shares of common stock equivalents were excluded from the computations of diluted net loss per share of common stock attributable to common stockholders for the periods presented, as the effect of including such securities would be anti-dilutive.

	As of March 31,	
	2019	**2018**
Common Stock Equivalents:	**Number of shares**	
Options to purchase common stock	6,780,896	5,662,800
Unvested shares of restricted stock units	222,187	217,186
Unvested shares of restricted stock	—	29,413
Total common stock equivalents	7,003,083	5,909,399

Application of New Accounting Standards

In the first quarter of 2019, the Company adopted ASU 2016-02, "Leases(Topic 842)," ("ASC 842") which requires companies that lease assets to recognize a right-of-use asset and a lease liability, initially measured at the present value of the lease payments, in its balance sheet. ASC 842 provides for a modified retrospective transition approach requiring lessees to recognize and measure leases on the balance sheet at the beginning of either the earliest period presented or as of the beginning of the period of adoption with the option to elect certain practical expedients. The Company has elected to apply ASC 842 as of the beginning of the period of adoption (January 1, 2019) and has not restated comparative periods.

The Company has elected the 'package of practical expedients', which permit it not to reassess under the new standard its prior conclusions about lease identification, lease classification and initial direct costs. The Company did not elect the use of hindsight practical expedient. The new standard also provides practical expedients for an entity's ongoing accounting. The Company elected the short-term lease recognition exemption for all leases that qualify.

Upon adoption, the Company recognized operating lease liabilities of $6.7 million and corresponding operating lease ROU assets, net of deferred rent and tenant allowances, of $5.0 million. See Note 7 - Leases for additional information.

NOTE 4 - CASH, CASH EQUIVALENTS AND RESTRICTED CASH

As of March 31, 2019, and December 31, 2018, respectively, the Company maintained $4.6 million and $5.0 million as restricted cash.

During 2017, $4.2 million was received from the Cancer Prevention and Research Institute of Texas, or "CPRIT", and the unreleased balance is being held in a separate account to be used for costs solely related to the CPRIT grant. Release of the CPRIT funds are subject to the terms of the grant agreement and requirements therein and require the authorization of CPRIT. To-date, CPRIT authorized the release of $1.1 million of restricted funds from the CPRIT account, leaving a balance of $3.1 million at March 31, 2019. For more information about the CPRIT grant, see Note 10.

The remaining $1.5 million of restricted cash as of March 31, 2019 and the $1.6 million in 2018 is held in escrow to cover specific construction of manufacturing improvement costs related to the facility lease. The release of the escrowed funds is subject to the terms of the escrow agreement and requirements therein including approval by both the Company and the landlord based on authorized completion of certain aspects of the manufacturing improvements.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the balance sheets that sum to the total of the same such amounts shown in the statements of cash flows.

	March 31, 2019	December 31, 2018
	(in thousands)	
Cash and cash equivalents [(1)]	$ 42,274	$ 43,695
Restricted cash, noncurrent	4,585	4,973
Total cash, cash equivalents and restricted cash shown in the statements of cash flows	$ 46,859	$ 48,668

[(1)] As of March 31, 2019, and December 31, 2018, the Company invested approximately $31.2 million and $25.0 million, respectively, in cash equivalent instruments.

NOTE 5 - FAIR VALUE MEASUREMENTS AND INVESTMENT SECURITIES

Fair Value Measurement

The Company follows ASC, Topic 820, *Fair Value Measurements and Disclosures*, or ASC 820, for application to financial assets. ASC 820 defines fair value, provides a consistent framework for measuring fair value under GAAP and requires fair value financial statement disclosures. ASC 820 applies only to the measurement and disclosure of financial assets that are required or permitted to be measured and reported at fair value under other ASC topics (except for standards that relate to share-based payments such as ASC Topic 718, *Compensation - Stock Compensation*).

The valuation techniques required by ASC 820 may be based on either observable or unobservable inputs. Observable inputs reflect readily obtainable data from independent sources, and unobservable inputs reflect the Company's market assumptions.

These inputs are classified into the following hierarchy:

Level 1 Inputs - quoted prices (unadjusted) in active markets for identical assets that the reporting entity has the ability to access at the measurement date;

Level 2 Inputs - inputs other than quoted prices included within Level 1 that are observable for the asset, either directly or indirectly; and

Level 3 Inputs - unobservable inputs for the assets.

The following tables present the Company's investment securities (including, if applicable, those classified on the Company's balance sheet as cash equivalents) that are measured at fair value on a recurring basis as of March 31, 2019 and December 31, 2018:

		Fair Value Measurements at Reporting Date Using		
	Balance at March 31, 2019	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
	(in thousands)			
Cash Equivalents:				
Money market funds	$ 31,249	$ 31,249	$ —	$ —
Total Cash Equivalents	$ 31,249	$ 31,249	$ —	$ —
Investment Securities:				
U.S. government agency-backed securities	$ 4,745	$ —	$ 4,745	$ —
Corporate debt securities	26,465	—	26,465	—
Total Investment Securities	$ 31,210	$ —	$ 31,210	$ —

		Fair Value Measurements at Reporting Date Using		
	Balance at December 31, 2018	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
	(in thousands)			
Cash Equivalents:				
Money market funds	$ 24,953	$ 24,953	$ —	$ —
Total Cash Equivalents	$ 24,953	$ 24,953	$ —	$ —
Investment Securities:				
U.S. government agency-backed securities	$ 7,383	$ —	$ 7,383	$ —
Corporate debt securities	41,921	—	41,921	—
Total Investment Securities	$ 49,304	$ —	$ 49,304	$ —

U.S. Treasury, U.S. government agency-backed securities and corporate debt securities are valued based on various observable inputs such as benchmark yields, reported trades, broker/dealer quotes, benchmark securities and bids.

Investment securities, all classified as available-for-sale, consisted of the following as of March 31, 2019 and December 31, 2018:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Estimated Fair Value
March 31, 2019	(in thousands)			
Investment Securities:				
U.S. government agency-backed securities	$ 4,739	$ 6	$ —	$ 4,745
Corporate debt securities	26,465	7	(7)	26,465
Total Investment Securities	$ 31,204	$ 13	$ (7)	$ 31,210

December 31, 2018	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Estimated Fair Value
	(in thousands)			
U.S. government agency-backed securities	$ 7,382	$ 2	$ (1)	$ 7,383
Corporate debt securities	41,968	—	(47)	41,921
Total	$ 49,350	$ 2	$ (48)	$ 49,304

The Company's investment securities as of March 31, 2019, will reach maturity between April 2019 and November 2019, with a weighted-average maturity date in June 2019.

NOTE 6 - PROPERTY AND EQUIPMENT

Property and equipment consists of the following:

	Estimated Useful Lives	March 31, 2019	December 31, 2018
		(in thousands)	
Leasehold improvements	5 Years	$ 21,633	$ 21,633
Lab equipment	5 Years	8,511	8,471
Office furniture	5 Years	1,704	1,704
Manufacturing equipment	5 Years	1,891	1,890
Computer and office equipment	3 to 5 Years	1,698	1,606
Equipment held under financing leases	5 Years	103	204
Software	3 Years	362	361
Total		35,902	35,869
Less: accumulated depreciation		(16,713)	(14,991)
Property and equipment, net		$ 19,189	$ 20,878

During the three months ended March 31, 2019 and 2018, the Company recorded $1.8 million and $1.4 million of depreciation expense, respectively. Leasehold improvements as of March 31, 2019 and December 31, 2018 includes $2.5 million related to costs incurred by the landlord.

NOTE 7 - LEASES

The Company determines whether an arrangement is a lease at its inception. Operating leases relate primarily to office space and manufacturing facilities with remaining lease terms of one year to seven years, some of which include options to extend the lease term for up to five years. Management considered the options in determining the lease term used to establish the Company's ROU assets and lease liabilities.

As most of the Company's leases do not provide an implicit rate, the Company's incremental borrowing rate based on the information available at lease commencement date was used to determine the present value of lease payments. Components of lease cost are as follows:

	Three months ended March 31, 2019
	(in thousands)
Operating lease cost[(1)]	$ 446
Short-term lease cost	$ 35
Operating cash flow information:	
Cash paid for amounts included in the measurement of lease liabilities	$ 530

(1) Includes right-of-use asset amortization of $312.

Weighted-average remaining lease term and discount rate for operating leases are as follows:

	Three months ended March 31, 2019
Weighted-average remaining lease term	6.5 years
Weighted-average discount rate	12.1%

Maturities of lease liabilities by year for leases are as follows (in thousands):

	Operating Leases	Financing Leases
2019[1]	$ 1,596	$ 24
2020	1,147	31
2021	1,091	24
2022	1,124	—
2023	1,133	—
2024 and beyond	3,222	—
Total lease payments	9,313	79
Less: Imputed interest	(3,001)	(16)
Present value of lease liabilities	$ 6,312	$ 63

(1) Excluding the 3 months ended March 31, 2019.

As of December 31, 2018, minimum lease payments under non-cancelable leases by period were expected to be as follows:

Year	Operating Leases	Capital Leases
	(in thousands)	
2019	$ 2,087	$ 68
2020	1,112	68
2021	1,055	43
2022	1,094	—
2023	1,133	—
Thereafter	3,222	—
Total minimum rentals	$ 9,703	179

NOTE 8 – ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses and other liabilities consist of the following:

	March 31, 2019	December 31, 2018
	(in thousands)	
Accrued construction costs	$ 457	$ 457
Accrued payroll	1,943	3,430
Accrued patient treatment costs	1,967	2,053
Accrued manufacturing costs	204	546
Accrued professional services	1,227	235
Accrued obligations under material supply agreements	2,243	—
Accrued other	2,348	1,868
Total accrued expenses and other current liabilities	$ 10,389	$ 8,589

NOTE 9 - DEBT

Oxford Loan

On December 21, 2017, or the Oxford Closing Date, the Company entered into a loan and security agreement, or the Oxford Loan Agreement, with Oxford Finance LLC, as the collateral agent and a lender, pursuant to which the Company borrowed $35.0 million in a single term loan, or the Oxford Loan on the Oxford Closing Date. For additional information about the Oxford Loan Agreement, see Note 8 to the audited financial statements contained in the Annual Report.

The Company paid expenses related to the Oxford Loan Agreement of $0.1 million, which, along with the final facility charge of $3.0 million, have been recorded as deferred financing costs, and are included in long-term debt on the Company's balance sheet. The deferred financing costs are being amortized over the term of the loan as interest expense. Interest expenses included amortization of deferred financing costs of $0.2 million during each of the three-month periods ended March 31, 2019 and 2018.

Management believes that the carrying value of the debt facility approximates its fair value, as the Company's debt facility bears interest at a rate that approximates prevailing market rates for instruments with similar characteristics. The fair value of the Company's debt facility is determined under Level 2 in the fair value hierarchy.

NOTE 10 - GRANT REVENUE

Cancer Research Grant Contract

On August 9, 2017, the Company entered into a Cancer Research Grant Contract with CPRIT, pursuant to which CPRIT awarded a grant of approximately $16.9 million to the Company to fund development of rivo-cel for hematologic cancer, or the CPRIT Award. The CPRIT Award is contingent upon funds being available during the term of the grant agreement and subject to CPRIT’s ability to perform its obligations under the grant agreement. For additional information about the grant agreement, see Note 9 to the audited financial statements in the Annual Report.

During the three-month period ended March 31, 2019 and 2018, the Company recognized expenses and accrued revenue of $0.5 million and $0.2 million, respectively, for work performed under the CPRIT grant.

NOTE 11 - STOCKHOLDERS' EQUITY

On April 20, 2018, the Company completed an underwritten public offering of 9,200,000 shares of its common stock at a price of $7.50 per share, for an aggregate offering size of $69.0 million, pursuant to a registration statement on Form S-3. The net proceeds to the Company, after deducting underwriting discounts, and commissions and offering expenses was approximately $64.7 million.

On October 5, 2018, the Company entered into an Open Market Sale Agreement[SM] with Jefferies LLC, or Jefferies, as sales agent, or the Jefferies Agreement, pursuant to which the Company may offer and sell, from time to time, through Jefferies, shares of the Company's common stock having an aggregate offering price of up to $60.0 million. The shares will be offered and sold pursuant to the Company's shelf registration statement on Form S-3. During the three months ended March 31, 2019, the Company received $4.6 million in proceeds, net of discounts and offering expenses totaling $0.2 million, and issued 1,350,652 shares of common stock pursuant to the Jefferies Agreement.

NOTE 12 - SHARE-BASED COMPENSATION PLANS

The Company has four share-based compensation plans, which authorize the granting of shares of common stock and options to purchase common stock to employees and directors of the Company, as well as non-employee consultants, and allows the holder of the option to purchase common stock at a stated exercise price. Options vest according to the terms of the grant, which may be immediately or based on the passage of time, generally over four years, and have a term of up to 10 years. Unexercised stock options terminate on the expiration date of the grant. The Company recognizes the share-based compensation expense over the requisite service period of the individual grantees, which generally equals the vesting period.

For a description of each plan, refer to Note 11 to the audited financial statements included the Annual Report.

The following table summarizes the stock option activity for all stock plans during the three months ended March 31, 2019:

	Options and Inducement awards
Outstanding at December 31, 2018	5,759,246
Granted	1,325,125
Exercised	—
Forfeited	(303,475)
Outstanding at March 31, 2019	6,780,896
Exercisable at March 31, 2019	2,865,439

The following table summarizes the stock award activity for all stock plans during the three months ended March 31, 2019:

	Restricted Stock Awards and Units
Outstanding at December 31, 2018	246,155
Granted	30,000
Vested	(41,031)
Forfeited	(12,937)
Outstanding at March 31, 2019	222,187

2014 Employee Stock Purchase Plan

The 2014 Employee Stock Purchase Plan, or the ESPP, provides for eligible Company employees, as defined by the ESPP, to be given an opportunity to purchase the Company's common stock at a discount, through payroll deductions, with stock purchases being made upon defined purchase dates. The ESPP authorizes the issuance of up to 550,000 shares of the Company's common stock to participating employees and allows eligible employees to purchase shares of common stock at a 15% discount from the lesser of the grant date or purchase date fair market value. There were no shares purchased by the ESPP in either of the three-month periods ended March 31, 2019 and 2018, respectively. As of March 31, 2019, there were 414,637 shares available for issuance under the ESPP.

A summary of activity within the ESPP follows:

	Three months ended March 31,	
	2019	2018
	(amounts in thousands)	
Deductions from employees	$ 96	$ 49
Share-based compensation expense recognized	$ 76	$ 36
Remaining share-based compensation expense	$ 493	$ 244

Share-Based Compensation Expense

The valuation of the share-based compensation awards is a significant accounting estimate that requires the use of judgments and assumptions that are likely to have a material impact on the financial statements. The fair value of option grants is determined using the Black-Scholes option-pricing model. Expected volatilities utilized in the model are based on implied volatilities from traded stocks of peer companies. Similarly, the dividend yield is based on historical experience and the estimate of future dividend yields. The risk-free interest rate is derived from the U.S. Treasury yield curve in effect at the time of grant. The expected term of the options is based on the average period the stock options are expected to remain outstanding. As the Company does not have sufficient historical information to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior, the expected term is calculated as the midpoint between the weighted-average vesting term and the contractual expiration period also known as the simplified method.

The fair value of the option grants has been estimated, with the following weighted-average assumptions:

	Three months ended March 31,	
	2019	2018
Risk-free interest rate	2.53%	2.41%
Volatility	72.0%	71.1%
Expected life (years)	6.08	6.08
Expected dividend yield	—%	—%

Share-based compensation expense by classification for the three months ended March 31, 2019 and 2018 are as follows:

	Three Months Ended March 31,	
	2019	2018
	(in thousands)	
Research and development	$ 1,065	$ 1,669
General and administrative	1,071	1,936
Total	$ 2,136	$ 3,605

At March 31, 2019, total compensation cost not yet recognized was $15.5 million and the weighted-average period over which this amount is expected to be recognized is 2.63 years.

NOTE 13 - SUBSEQUENT EVENTS

Subsequent to March 31, 2019, the Company executed an additional operating lease for office space and expects to record a right -of-use asset and lease liability of approximately $1.4 million when the lease commences in the second quarter of 2019.

NOTE 14 - COMMITMENTS AND CONTINGENCIES

Miltenyi Supply Agreement

On March 27, 2019, Bellicum entered into a strategic, long-term supply agreement with Miltenyi Biotec GmbH, or Miltenyi, for the supply of Miltenyi's CliniMACS tubing set, reagents and disposables for the manufacture of Bellicum's programmed T cell therapies for preclinical and clinical use and, if approved, for commercial use, as well as support services. Under the supply agreement, Bellicum is required to make non-refundable upfront payments totaling €2,000,000, which have been capitalized as an intangible asset and will be amortized over the 10-year term of the agreement. The annual amortization will be approximately $0.2 million for each of the next five years.

Under the supply agreement, Bellicum will provide Miltenyi with regularly scheduled rolling forecasts of anticipated purchase requirements on a product-by-product and country-by-country basis. Within the rolling forecasts, there is a period of time referred to as the "Firm Zone" in which Bellicum is obligated to purchase, and Miltenyi has agreed to provide, the number of products Bellicum has specified for that period, subject to specified conditions and limitations.

Litigation

On February 6, 2018, a purported securities class action complaint captioned *Nipun Kakkar v. Bellicum Pharmaceuticals, Inc., Rick Fair and Alan Musso* was filed against the Company, and certain of its officers in the U.S. District Court for the Southern District of Texas, Houston Division. A second substantially similar class action was filed on March 14, 2018 by plaintiff Frances Rudy against the same defendants in the same court. The lawsuits purport to assert class action claims on behalf of purchasers of the Company's securities during the period from May 8, 2017 through January 30, 2018. The complaints allege that the defendants violated the Securities Exchange Act of 1934, as amended, or the Exchange Act, by making materially false and misleading statements concerning the Company's clinical trials being conducted in the U.S. to assess rivo-cel (rivogenlecleucel, formerly known as BPX-501) as an adjunct T-cell therapy administered after allogeneic hematopoietic stem cell transplantation. The complaints purport to assert claims for violations of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 promulgated thereunder. The complaints seek, on behalf of the purported class, an unspecified amount of monetary damages, interest, fees and expenses of attorneys and experts, and other relief. On April 9, 2018, the District Court consolidated the two lawsuits under the Kakkar action. On March 26, 2019, the court appointed lead plaintiffs to represent the putative class.

On July 19, 2018, a purported shareholder derivative complaint captioned *Seung Paik v. Richard A. Fair, et al*. was filed against the Company's directors and certain of the Company's officers in the U.S. District Court for the Southern District of Texas, Houston Division. The lawsuit purports to seek damages on behalf of the Company against the individual defendants for breach of fiduciary duty, waste, unjust enrichment and violations of Section 14(a) of the Exchange Act. The complaint alleges that the defendants caused or allowed the Company to disseminate misstatements regarding the clinical trials for rivo-cel and to make false or misleading statements in the proxy materials for the Company's 2017 annual meeting of stockholders. On October 3, 2018, the District Court granted the Company's motion to stay the derivative cause of action until reinstated on motion of the parties.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on March 12, 2019, or our Annual Report, as well as our unaudited consolidated financial statements and related notes included in this Quarterly Report on Form 10-Q, or this Quarterly Report.

Forward-Looking Statements

This report contains forward-looking statements and information within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, which are subject to the "safe harbor" created by those sections. These forward-looking statements include, but are not limited to, statements concerning our strategy, future operations, future financial position, future revenues, projected costs, prospects and plans and objectives of management. The words "anticipate," "believe," "could," "designed," "estimate," "expect," "intend," "may," "plan," "potential," "project," "will," "would," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements that we make. These forward-looking statements involve risks and uncertainties that could cause our actual results to differ materially from those in the forward-looking statements, including, without limitation, the risks set forth in Part II, Item 1A, "Risk Factors" in this Quarterly Report on Form 10-Q, Part I, Item 1A, "Risk Factors" in our Annual Report and in our other filings with the SEC. The forward-looking statements are applicable only as of the date on which they are made, and we do not assume any obligation to update any forward-looking statements.

Overview

We are a clinical stage biopharmaceutical company focused on discovering and developing novel cellular immunotherapies by modulating T cell function via controllable molecular switches. We are focused on developing treatments for various forms of cancer, including both hematological cancers and solid tumors, as well as orphan inherited blood disorders. We are using our proprietary Chemical Induction of Dimerization, or CID, technology platform to engineer our product candidates with switch technologies that are designed to control components of the immune system in real time. By incorporating our CID platform, our product candidates may offer better efficacy and safety outcomes than are seen with current cellular immunotherapies.

We are developing next-generation product candidates in some of the most important areas of cellular immunotherapy, including chimeric antigen receptor T cell therapy, or CAR-T and hematopoietic stem cell transplantation, or HSCT. CAR-T cell therapies are an innovative approach in which a patient's T cells are genetically modified to carry chimeric antigen receptors, or CARs. While high objective response rates have been reported in some hematological malignancies, CAR-T cells have shown limited clinical efficacy in solid tumors due to limited proliferation and persistence of these cells and to immune suppressive factors found in the tumor microenvironment. Patients treated with CAR-T cell therapies can have serious and sometimes fatal toxicities, which include instances in which the CAR-T cells have caused high levels of cytokines due to over-activation, referred to as "cytokine release syndrome," or CRS, neurologic toxicities and cases in which CAR-T cells have attacked healthy organs. In each case, these toxicities have sometimes resulted in death. HSCT, also known as bone marrow transplantation, has for decades been curative for many patients with hematological cancers or orphan inherited blood disorders. However, adoption of HSCT to date has been limited by the risks of transplant-related morbidity and mortality from graft-versus-host-disease, or GvHD, and the potential for serious infections or cancer recurrence due to the lack of an effective immune system following a transplant.

Our proprietary CID platform is designed to address these challenges. Events inside a cell are controlled by cascades of specialized signaling proteins. CID consists of molecular switches, modified forms of these signaling proteins, which are triggered inside the patient by infusion of a small molecule, instead of by natural upstream signals. We include these molecular switches in the appropriate immune cells and deliver the cells to the patient in the manner of conventional cellular immunotherapy. We have developed two such switches: an "activation switch," designed to stimulate activation, proliferation and persistence of the immunotherapy cells and provide other immunomodulatory benefits, and a "safety switch," designed to initiate programmed cell death, or apoptosis, of the immunotherapy cells. Each of our product candidates incorporates one or both of these switches, for enhanced, real time control of efficacy and safety:

- Our iMC activation switch (also known as inducible MyD88/CD40) incorporated into our GoCAR-T™ product candidates is designed to deliver enhanced efficacy versus 1st and 2nd generation CAR-T therapies through multiple mechanisms of action, including: 1) inductible activation, proliferation and persistence of the T cells; 2) modulation of the tumor microenvironment, overriding common inhibitory pathways like PD-1, PGE2, and TGF-b; and 3) enhancing host immune activity by inducing pro-inflammatory cytokines and chemokines to modulate the tumor microenvironment and recruit host immune cells. These effects are designed to be controlled through the scheduled administration of a course of rimiducid infusions that may continue until the desired patient outcome is achieved. In the event of emergence of side effects, the level of activation of the GoCAR-T cells is designed to be attenuated by extending the interval between rimiducid doses, potentially reducing the dosage per infusion, or suspending further rimiducid administration.

- Our CaspaCIDe™ safety switch (also known as inducible Caspase-9, or iC9) is incorporated into our rivo-cel product candidate, where it is inactive unless the patient experiences a serious side effect. In that event, a

small molecule dimerizer (e.g., rimiducid or temsirolimus) is administered to induce Caspase-9 and eliminate a majority of the cells, with the goal of attenuating the therapy and resolving the serious side effect.

- In addition, we have an active research effort to develop other advanced molecular switch approaches, including a "dual-switch" GoCAR-T that is designed to provide a user-controlled system for managing proliferation, persistence and safety of tumor antigen-specific CAR T cells by incorporating both our iMC and CaspaCIDe switches, respectively.

By incorporating our novel switch technologies, we are developing product candidates with the potential to elicit positive clinical outcomes and ultimately change the treatment paradigm in various areas of cellular immunotherapy. Our clinical product candidates are described below.

- **Rivo-cel (rivogenlecleucel, formerly known as BPX-501)** is a product candidate intended to improve HSCT outcomes in the treatment of hematologic malignancies, including leukemias, lymphomas, and inherited blood disorders. Rivo-cel, which contains our proprietary CaspaCIDe safety switch, is an allogeneic polyclonal T cell therapy that is designed to improve transplant outcomes following an HSCT procedure, including enhancing the recovery of the donor immune system, providing protection against infections, and in the case of malignancies, protection against disease relapse. In cases of severe or uncontrolled GvHD (the primary risk of donor T cell infusions), elimination of a portion of the infused rivo-cel product is possible through the activation of the CaspaCIDe safety switch.

  The European Commission has granted orphan drug designations to rivo-cel for treatment in HSCT, and for activator agent rimiducid for the treatment of GvHD. Additionally, rivo-cel and rimiducid have received orphan drug status from the U.S. Food and Drug Administration, or the FDA, as a combination replacement T cell therapy for the treatment of immunodeficiency and GvHD after allogeneic HSCT.

  Based on interactions with the European Medicines Agency, or the EMA, we believe that data from the European arm of our BP-004 trial could form the basis of Marketing Authorisation Applications, or MAAs, for rivo-cel and rimiducid for the treatment of pediatric patients with high-risk hematological cancers or certain orphan inherited blood disorders. In addition, the EMA's Committee for Medicinal Products for Human Use, or the CHMP, has agreed that review and approval under "exceptional circumstances" may be suitable, recognizing that a randomized trial may not be feasible in the pediatric haploidentical HSCT setting. In place of a randomized trial, we are collecting data from the C/CP-004 study, a concurrent observational study in pediatric patients receiving a matched unrelated donor HSCT. In addition, based on recent EMA feedback we are also planning to compare our BP-004 results to similar patients registered in the European Bone Marrow Transplant (EBMT) registry. We expect to report top-line results from the BP-004 clinical trial in the second quarter of 2019 and to file MAAs for European marketing approvals in 2019.

  We are currently conducting a pivotal randomized Phase 2/3 global clinical trial, called THRIVE, for rivo-cel in adult and adolescent patients 12 years and older with intermediate and high-risk acute myeloid leukemia (AML) or myelodysplastic syndromes (MDS). The trial will compare the primary endpoint of overall survival in patients receiving a haplo-transplant with rivo-cel versus the standard post-transplant cyclophosphamide haplo-transplant regimen. We submitted and reviewed the protocol with the FDA during a Type C meeting and began screening patients for the trial in December of 2018.

- **BPX-601** is an autologous GoCAR-T product candidate containing our proprietary iMC activation switch, designed to treat solid tumors expressing prostate stem cell antigen, or PSCA. We believe iMC enhances T cell proliferation and persistence, enhances host immune activity, and modulates the tumor microenvironment to improve the potential to treat solid tumors compared to traditional CAR-T therapies. A Phase 1/2 clinical trial, called BP-012, in patients with pancreatic, gastric, or prostate cancers expressing PSCA is ongoing and we expect to report updated data from this clinical trial in 2019.

- **BPX-603** is a dual-switch GoCAR-T product candidate containing both the iMC activation and CaspaCIDe safety switches. BPX-603 is Bellicum's first controllable dual-switch GoCAR-T product candidate and is designed to target solid tumors that express the human epidermal growth factor receptor 2 antigen, or HER2. We expect to submit an IND for BPX-603 and to initiate a clinical trial in 2019.

- **BPX-802** is a dual-switch GoCAR-T product candidate containing both the iMC and CaspaCIDe switches. BPX-802 is designed to target an antigen expressed in hematological malignancies. We expect to submit an IND for BPX-802 in late 2019.

We have developed efficient and scalable processes to manufacture genetically modified T cells of high quality, which are currently being used to produce rivo-cel and BPX-601 for our clinical trials. We are leveraging this know how in combination with our proprietary cellular control technologies, resources, capabilities and expertise for the manufacture of CAR-T product candidates to create and develop first and best-in-class product candidates.

We have established in-house cell manufacturing and vector production capabilities at our headquarters facility in Houston, Texas. We completed the facility build-out in early 2018, and we expect that our facilities will meet our U.S. clinical trial and early commercialization requirements. For the European market, we plan to continue working with established contract manufacturers.

Results of Operations

Comparison of the Three Months Ended March 31, 2019 and 2018

The following table sets forth our results of operations for the three month periods ended March 31, 2019 and 2018 (in thousands):

	Three Months Ended March 31,		
	2019	**2018**	**Change**
Total revenues	$ 516	$ 154	$ 362
Operating expenses:			
Research and development	16,818	16,536	282
License fees	30	30	—
General and administrative	7,536	5,692	1,844
Total operating expenses	24,384	22,258	2,126
Loss from operations	(23,868)	(22,104)	(1,764)
Other income (expense):			
Interest income	410	267	143
Interest expense	(1,070)	(1,003)	(67)
Total other expense	(660)	(736)	76
Net loss	$ (24,528)	$ (22,840)	$ (1,688)

Grant Revenues

We recognized grant revenue of $0.5 million and $0.2 million, respectively, in the three months ended March 31, 2019 and 2018 from the CPRIT grant.

Research and Development Expenses

Research and development expenses increased $0.3 million in the three months ended March 31, 2019, compared with the three months ended March 31, 2018. The overall increase was due to increases in costs related to our GoCAR-T program, including expenses related to the filing of an IND for BPX-603 and increased expenses related to BPX-601 related to initiation of additional clinical sites. Expenditures related to rivo-cel and general research and development expenses were comparable in the three months ended March 31, 2019 and 2018.

License Fees

We incur license fees under the terms of our various license agreements for intellectual property. License fees were comparable in the three months ended March 31, 2019 and 2018. See Note 12 to the audited financial statements in our Annual Report for additional information about our license agreements.

General and Administrative Expenses

General and administrative expenses increased $1.8 million in the three-month periods ended March 31, 2019, compared to the same periods in 2018. The increase is primarily due to an increase in personnel costs as well as increased commercialization activities.

Other Expense

Other expense consists of interest expense partially offset by interest income. Other expenses were comparable in the three months ended March 31, 2019 and 2018. See Note 9 to the unaudited interim financial statements for additional information about debt obligations. See Note 11 to the unaudited interim financial statements for additional information about the public offerings of our common stock.

Liquidity and Capital Resources

Going Concern and Management's Plans

The accompanying consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. At March 31, 2019 we had a significant accumulated deficit of approximately $445.1 million and working capital of approximately $60.5 million. During the three months ended March 31, 2019, we had net loss of approximately $24.5 million and negative cash flows from operations of approximately $24.6 million. Our operating activities consume the majority of our cash resources. Based on our research and development plans and our timing expectations related to the progress of our programs, we believe there is substantial doubt that our cash, cash equivalents, restricted cash and investment securities of $78.1 million as of March 31, 2019 will be sufficient to fund our operating expenses and capital expenditure requirements through one year from the financial statement issuance date.

We have had and will continue to have negative cash flows from operations, at least into the near future. We have previously funded, and plan to continue funding, our losses primarily through the sale of common stock, debt financings and grants. However, we cannot be certain that we will be able to obtain such funds required for our operations at terms acceptable to us or at all.

We will continue to attempt to obtain future financing or engage in strategic transactions which may require us to curtail our operations. We cannot predict, with certainty, the outcome of our actions to generate liquidity, including the availability of additional equity or debt financing, or whether such actions would generate the expected liquidity as currently planned. To continue as a going concern, we may postpone or eliminate some of our research and development programs and reduce our administrative costs. We may also intend to seek additional funding including, but not limited to any or all of the following potential sources:

In August 2018, we filed a registration statement on Form S-3 for the offer and sale by the Company of its securities in one or more offerings for up to an aggregate maximum offering price of $150.0 million. The registration statement became effective August 23, 2018. We intend to obtain additional funding through the sale of our securities in one or more offerings, however we cannot assure you that we will be able to do so on favorable terms. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interests of our stockholders will be diluted, and the terms may include liquidation or other preferences that adversely affect the rights of our existing stockholders. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business.

On October 5, 2018, we entered into an Open Market Sale Agreement^{SM} with Jefferies LLC, as sales agent, pursuant to which we may offer and sell, from time to time, through Jefferies, shares of the Company's common stock having an aggregate offering price of up to $60.0 million. The shares will be offered and sold pursuant to the Company's shelf registration statement on Form S-3. During the three months ended March 31, 2019, we received $4.6 million in net proceeds from the sale of 1,350,652 shares of our common stock in the open market. See Note 11 to the unaudited interim financial statements.

We may also consider new collaborations or selectively partnering our technology. If we raise additional funds through strategic partnerships and alliances and licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or product candidates or grant licenses on terms unfavorable to us.

Funding Requirements

Our primary uses of capital are, and we expect will continue to be, compensation and related expenses, third-party clinical research and development services, laboratory and related supplies, clinical costs, legal and other regulatory expenses, facility costs and general overhead costs.

The successful development of any of our product candidates is highly uncertain. As such, at this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the development of rivo-cel, our GoCAR-T program or our other current and future product candidates. We are also unable to predict when, if ever, material net cash inflows will commence from the sale of product candidates.

C***ash Flows***

Our liquid assets, consisting of cash, restricted cash and investments in marketable securities declined $19.9 million in the three months ended March 31, 2019. We used $24.6 million to fund our operating activities, and $0.1 million to fund purchases of equipment, partially funding our uses of liquid resources with $0.1 million in proceeds from stock option exercises and $4.6 million in net proceeds from sales of our common stock through the Open Market Sale Agreement with Jefferies LLC.

In the comparable three months ended March 31, 2018, our liquid assets declined $18.3 million. We used $18.7 million to fund our operating activities, and $0.4 million to fund purchases of equipment, partially funding our uses of liquid resources with proceeds from stock option exercises of $0.8 million.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements in conformity with generally accepted accounting principles requires us to make judgments, estimates and assumptions in the preparation of our consolidated financial statements and accompanying notes. Actual results could differ from those estimates. On January 1, 2019, we adopted ASC 842 “Leases,” which requires companies that lease assets to recognize a right-of-use asset and a lease liability, initially measured at the present value of the lease payments, in its balance sheet. See Note 3 and Note 7 to the unaudited financial statements included in this Quarterly Report.

Recent Accounting Pronouncements

See note 3 of the unaudited financial statements included in this Quarterly Report.

Off-Balance Sheet Arrangements

During the periods presented, we did not have, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the Securities and Exchange Commission.

Item 3. Quantitative and Qualitative Disclosures about Market Risks

The primary objective of our investment activities is to preserve our capital to fund our operations. We also seek to realize income from our investments without assuming significant risk. To achieve our objectives, we invest our cash allocated to fund our short-term liquidity requirements with prominent financial institutions in bank depository accounts and institutional money market funds. We invest the remainder of our cash in corporate debt securities and municipal bonds rated at least A quality or equivalent, U.S. Treasury notes and bonds and U.S. and state government agency-backed securities. As of March 31, 2019, we had cash, cash equivalents, restricted cash and investment securities of $78.1 million.

A portion of our investments may be subject to interest rate risk and could fall in value if market interest rates increase. However, because our investments are primarily short-term in duration, we believe that our exposure to interest rate risk is not significant and a 1% movement in market interest rates would not have a significant impact on the total value of our portfolio. We actively monitor changes in interest rates.

We are exposed to changes in foreign currency exchange rates. We have contracts with entities in areas outside the U.S. that are denominated in a foreign currency. Most of our assets are located within the U.S. and are not subject to changes in foreign currency exchange rates, however a portion of our operating expense is denominated in foreign currencies, primarily pounds sterling and euros. We do not engage in any hedging transactions to mitigate the effect of changes in foreign currency exchange rates. While the effect of changes in foreign currency exchange rates has not had a material effect on our financial results or financial condition to date, we cannot assure you that fluctuations in foreign currency exchange rates will not have a material effect on our future results.

Item 4. Controls and Procedures

Management's Evaluation of our Disclosure Controls and Procedures

Our management, with the participation of our Principal Executive Officer, our Principal Financial Officer and our Principal Accounting Officer, evaluated the effectiveness of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of March 31, 2019. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its Principal Executive, Principal Financial and Principal Accounting Officers, as appropriate, to allow timely decisions regarding required disclosure.

Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of March 31, 2019, our Principal Executive Officer, Principal Financial Officer and Principal Accounting Officer concluded that, as of such date, our disclosure controls and procedures were effective.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during our latest fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

On February 6, 2018, a purported securities class action complaint captioned *Nipun Kakkar v. Bellicum Pharmaceuticals, Inc., Rick Fair and Alan Musso* was filed against us, and certain of our officers in the U.S. District Court for the Southern District of Texas, Houston Division. A second substantially similar class action was filed on March 14, 2018 by plaintiff Frances Rudy against the same defendants in the same court. The lawsuits purport to assert class action claims on behalf of purchasers of our securities during the period from May 8, 2017 through January 30, 2018. The complaints allege that the defendants violated the Exchange Act by making materially false and misleading statements concerning our clinical trials being conducted in the U.S. to assess rivo-cel as an adjunct T-cell therapy administered after allogeneic hematopoietic stem cell transplantation. The complaints purport to assert claims for violations of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 promulgated thereunder. The complaints seek, on behalf of the purported class, an unspecified amount of monetary damages, interest, fees and expenses of attorneys and experts, and other relief. On April 9, 2018, the District Court consolidated the two lawsuits under the *Kakkar* action. On March 26, 2019, the court appointed lead plaintiffs to represent the putative class.

On July 19, 2018, a purported shareholder derivative complaint captioned *Seung Paik v. Richard A. Fair, et al.* was filed against the Company's directors and certain of the Company's officers in the U.S. District Court for the Southern District of Texas, Houston Division. The lawsuit purports to seek damages on behalf of the Company against the individual defendants for breach of fiduciary duty, waste, unjust enrichment and violations of Section 14(a) of the Exchange Act. The complaint alleges that the defendants caused or allowed the Company to disseminate misstatements regarding the clinical trials for rivo-cel and to make false or misleading statements in the proxy materials for the Company's 2017 annual meeting of stockholders. On October 3, 2018, the District Court granted the Company's motion to stay the derivative cause of action until reinstated on motion of the parties.

Item 1A. Risk Factors

Our business and results of operations are subject to a number of risks and uncertainties. You should carefully consider the following risk factors, as well as the other information in this report, and in our other public filings. The occurrence of any of the following risks could harm our business, financial condition, results of operations and/or growth prospects or cause our actual results to differ materially from those contained in forward-looking statements we have made in this report and those we may make from time to time. You should consider all of the risk factors described when evaluating our business. We have marked with an asterisk (*) those risk factors that reflect additional risk factors since the issuance of our Annual Report on Form 10-K for the year ended December 31, 2018, filed with the Securities and Exchange Commission on March 12, 2019, or our Annual Report.

Risks Related to Our Business and Industry

We have incurred net losses in every year since our inception and anticipate that we will continue to incur net losses in the future.*

We are a clinical stage biopharmaceutical company with a limited operating history. We are not profitable, have no products approved for commercial sale and have incurred significant losses since our inception in 2004. To date, we have financed our operations primarily through equity and debt financings. For the three months ended March 31, 2019 and 2018, we reported a net loss of $24.5 million and $22.8 million, respectively. As of March 31, 2019, we had an accumulated deficit of $445.1 million. We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase as we continue our research and development of, and seek regulatory approvals for, our product candidates.

In addition, if we obtain regulatory approval of and seek to commercialize any of our product candidates, we will likely incur significant sales, marketing and manufacturing expenses and may continue to incur substantial research and development expenses for additional post-marketing approval development requirements related to such product.

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 revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital.

We will require significant funding to complete the development and commercialization of our product candidates. If we fail to obtain additional financing, we may have to delay, reduce or eliminate our development programs or commercialization efforts.*

This report includes disclosures stating that our existing cash resources and our accumulated stockholders' deficit raise substantial doubt about our ability to continue as a going concern. Our operations have consumed substantial amounts of cash

since our inception. We expect to continue to spend substantial amounts to continue the preclinical and clinical development of our product candidates and other research and development programs.

As of March 31, 2019, we had cash, restricted cash and cash equivalents of approximately $46.9 million and total investments in marketable securities of $31.2 million. We maintain our cash, cash equivalents, and marketable securities with high quality, accredited financial institutions. These amounts at times may exceed federally insured limits. Cash, restricted cash and cash equivalents and investments in marketable securities, or a total of $78.1 million, may not be sufficient to fund our operating expenses and capital expenditure requirements through one year from the financial statement issuance date. Our cash position, together with our short-term debt obligations and anticipated operating losses due to increased effort on commercialization and research and development projects raises substantial doubt about our ability to continue as a going concern.

We expect to finance future cash needs through public or private equity offerings, debt financings, strategic partnerships and alliances or licensing arrangements. We cannot be certain that additional funding will be available on acceptable terms, or at all. Subject to limited exceptions, our loan agreement with Oxford Finance prohibits us from incurring indebtedness without the prior written consent of Oxford. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us we will need to significantly delay, scale back or discontinue the development or commercialization of our product candidates. We also could be required to:

- seek collaborators for one or more of our current or future product candidates on terms that are less favorable than might otherwise be available;
- relinquish or license on unfavorable terms our rights to technologies or product candidates that we otherwise would seek to develop or commercialize ourselves; or
- seek a third party to acquire us or our assets.

Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common shares to decline. In the event that sufficient additional funds are not obtained through public or private equity offerings, debt financings, strategic partnerships and/or alliances or licensing arrangements on a timely basis, we may be required to reduce expenses through the delay, reduction or curtailment of our development programs, or further reduction of costs for facilities and administration. Moreover, if we do not obtain such additional funds, there will continue to have substantial doubt about our ability to continue as a going concern and increased risk of insolvency and up to total loss of investment to our stockholders and other security holders.

The EMA and/or FDA may disagree with our regulatory plans and we may fail to obtain regulatory approval of our product candidates.

Our business and future success depends, in part, on our ability to obtain regulatory approval of and then successfully commercialize rivo-cel and our other clinical product candidates. All of our product candidates, including rivo-cel, will require additional clinical and non-clinical development, regulatory review and approval in multiple jurisdictions, substantial investment, and access to sufficient commercial manufacturing capacity and significant marketing efforts before we can expect to generate any revenue from product sales.

Rivo-cel and our other product candidates could fail to receive regulatory approval for many reasons, including the following:

- the EMA, FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the EMA, FDA or comparable foreign regulatory authorities that our product candidates have the necessary safety, purity, and potency for any of their proposed indications;
- the results of clinical trials may not meet the level of statistical significance required by the EMA, FDA or comparable foreign regulatory authorities for approval;
- we may be unable to demonstrate that our product candidates' clinical and other benefits outweigh their safety risks;
- we may encounter serious and unexpected adverse events during clinical trials that render our products unsafe for use in humans;
- the EMA, FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials;

- the data collected from clinical trials of our product candidates may not be sufficient to the satisfaction of the EMA, FDA or comparable foreign regulatory authorities to support the submission of an MAA, BLA or other comparable submission in foreign jurisdictions or to obtain regulatory approval in Europe, the U.S. or elsewhere;

- the EMA, FDA or comparable foreign regulatory authorities may fail to approve our manufacturing processes and/or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and

- the approval policies or regulations of the EMA, FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

We plan to initially seek approval for rivo-cel and rimiducid from the EMA for the treatment of pediatric patients undergoing haploidentical (partially matched) hematopoietic stem cell transplants, or HSCT, and to submit the MAAs for this indication in 2019. While we expect that the European arm of our BP-004 trial could serve as the registrational trial for these MAAs, this clinical trial was not originally designed for that purpose. We cannot be certain that our preclinical and clinical trial package for the MAAs will be sufficient for approval of rivo-cel for multiple reasons including issues related to trial conduct and analysis; limitations of data available from pre-clinical and Phase 1/2 studies; or issues related to CMC efforts to date. We have sought to avoid or remediate potential issues but we cannot be sure that such efforts will be effective or sufficient. Further, we cannot assure you that the EMA or any other regulatory agency will agree that rivo-cel provides a clinically meaningful and differentiated therapeutic benefit or that the side effects experienced in our clinical trials yield an acceptable benefit/risk ratio in the opinion of the EMA or other regulatory agencies. If the MAAs for rivo-cel are deficient, we will incur additional expense to address the deficiencies, which may require additional clinical trials, and the commercialization of rivo-cel will be delayed. This would adversely affect our business, results of operations and prospects.

We are currently conducting a pivotal randomized Phase 2/3 global clinical trial, called THRIVE, for rivo-cel in adult and adolescent patients 12 years and older with intermediate and high-risk AML or MDS. This trial is intended to provide the basis for approval of rivo-cel in the U.S. and expansion of the label in Europe. However, the general approach for FDA approval of a new biologic or drug is to require dispositive data from two adequate and well-controlled, Phase 3 clinical trials of the relevant biologic or drug in the relevant patient population. Phase 3 clinical trials typically involve hundreds of patients, have significant costs and take years to complete. We believe that a single Phase 3 clinical trial strategy is warranted given the limited alternatives for patients for whom rivo-cel therapy is potentially beneficial, but the FDA may ultimately require more than one Phase 3 clinical trial and may limit clinical trial designs allowed to serve as a registration trial.

In addition, because rivo-cel is our most advanced product candidate, and because many of our other product candidates are based on similar technology, if rivo-cel encounters safety or efficacy problems, developmental delays, regulatory issues or other problems, our development plans and business for our other product candidates would be significantly harmed.

Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of uncertainty. We have never generated any revenue from product sales and may never be profitable.

We have devoted substantially all of our financial resources and efforts to developing our proprietary CID technology platform, identifying potential product candidates and conducting preclinical studies and clinical trials. We are in the early stages of developing our product candidates, and we have not completed development of any products. Our ability to generate revenue and achieve profitability depends in large part on our ability, alone or with partners, to successfully complete the development of, obtain the necessary regulatory approvals for, and commercialize, product candidates. We do not anticipate generating revenues from sales of products for the foreseeable future. Our ability to generate future revenues from product sales depends heavily on our success in:

- completing requisite clinical trials through all phases of clinical development of rivo-cel and our other current product candidates;
- seeking and obtaining marketing approvals for rivo-cel and any other product candidates that successfully complete clinical trials, if any;
- launching and commercializing rivo-cel and other product candidates for which we obtain marketing approval, if any, with a partner or, if launched independently, successfully establishing a sales force, marketing and distribution infrastructure;
- identifying and developing new product candidates;
- progressing our pre-clinical programs into human clinical trials;
- establishing and maintaining supply and manufacturing relationships with third parties;
- developing new molecular switches based on our proprietary CID technology platform;

- maintaining, protecting, expanding and enforcing our intellectual property; and
- attracting, hiring and retaining qualified personnel.

Because of the numerous risks and uncertainties associated with biologic product development, we are unable to predict the likelihood or timing for when we may receive regulatory approval of rivo-cel or any of our other current or future product candidates or when we will be able to achieve or maintain profitability, if ever. If we do not receive regulatory approvals, our business, prospects, financial condition and results of operations will be adversely affected. Even if we obtain the regulatory approvals to market and sell one or more of our product candidates, we may never generate significant revenues from any commercial sales for several reasons, including because the market for our products may be smaller than we anticipate, or products may not be adopted by physicians and payors or because our products may not be as efficacious or safe as other treatment options. If we fail to successfully commercialize one or more products, we may be unable to generate sufficient revenues to sustain and grow our business and our business, prospects, financial condition and results of operations will be adversely affected. In addition, our expenses could increase beyond expectations if we are required by the European Medicines Agency, or EMA, the FDA, or other foreign regulatory agencies, to perform studies and clinical trials in addition to those that we currently anticipate for rivo-cel and our other product candidates, or if there are any delays in our or our partners completing clinical trials or the development of any of our product candidates. Further, if one or more of the product candidates that we independently develop is approved for commercial sale, we expect to incur significant costs associated with commercializing any such product candidates. Finally, even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis.

Our CID technology is novel and largely unproven.

Our proprietary CID technology platform is novel and there are no approved products or third-party product candidates in late-stage clinical trials based on this technology. Additionally, the safety and efficacy profile of rimiducid has not been subject to large scale clinical testing. If rimiducid is found to have a poor safety profile in clinical trials, or if our technology is not effective, we may be required to redesign all of our product candidates, which would require significant time and expense. In addition, our CID platform technology may not be applicable or effective in the development of additional cellular immunotherapies beyond our current programs which would adversely affect our business and prospects.

T cell therapies are novel and present significant challenges.

CAR T and TCR product candidates represent a relatively new field of cellular immunotherapy. Advancing this novel and personalized therapy creates significant challenges for us, including:

- obtaining regulatory approval, as the EMA, FDA and other regulatory authorities have limited experience with commercial development of T-cell therapies for cancer;
- sourcing clinical and, if approved, commercial supplies for the materials used to manufacture and process our product candidates;
- developing a consistent and reliable process, while limiting contamination risks, for engineering and manufacturing T cells *ex vivo* and infusing the engineered T cells into the patient;
- educating medical personnel regarding the potential safety benefits, as well as the challenges, of incorporating our product candidates into their treatment regimens;
- establishing sales and marketing capabilities upon obtaining any regulatory approval to gain market acceptance of a novel therapy; and
- the availability of coverage and adequate reimbursement from third-party payors for our novel and personalized therapy.

Our inability to successfully develop CAR T and TCR cell therapies or develop processes related to the manufacture or commercialization of these therapies would adversely affect our business, results of operations and prospects.

Our clinical trials may fail to adequately demonstrate the safety and efficacy of any of our product candidates, which would prevent or delay regulatory approval and commercialization.

Clinical testing is expensive, takes many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process and our product candidates are subject to the risks of failure inherent in biologic drug development. Success in early clinical trials does not mean that later clinical trials will be successful because product candidates in later-stage clinical trials may fail to demonstrate sufficient safety or efficacy despite having progressed through initial clinical testing, even at statistically significant levels. We will be required to demonstrate through clinical trials that our product candidates are safe and effective for use in the target indication before we can obtain regulatory approvals for commercial sale. Companies frequently suffer significant setbacks in late-stage clinical trials, even after earlier clinical trials have shown promising results and most product candidates that commence clinical trials are never approved as products. We expect there may be greater variability in results for cellular immunotherapy products processed and administered on a patient-by-patient basis like all our CID technology-based development and product candidates than for "off-the-shelf" products, like many drugs.

If any of our product candidates fail to demonstrate sufficient safety or efficacy, we would experience potentially significant delays in, or be required to abandon our development of the product candidate, which would have a material and adverse impact on our business, prospects, financial condition and results of operations.

Many of our current product candidates are in early stage clinical trials, and we may experience unfavorable results in the future.

We are enrolling patients in Phase 1 clinical trials of BPX-601 for the treatment of pancreatic, gastric, and prostate cancers and BPX-701 for the treatment of refractory or relapsed AML/MDS and uveal melanoma. We have not initiated clinical trials for any additional preclinical product candidates and we may not be able to commence clinical trials on the time frames we expect. As these product candidates are in early stages of development, we face significant uncertainty regarding how effective and safe they will be in human patients and the results from preclinical studies, such as *in vitro* and *in vivo* studies, of BPX-601 and BPX-701 and our other preclinical programs may not be indicative of the results of clinical trials of these product candidates. Preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval for their products.

Even if clinical trials are successfully completed, the FDA or foreign regulatory authorities may not interpret the results as we do, and more clinical trials could be required before we submit our product candidates for approval. To the extent that the results of our clinical trials are not satisfactory to the FDA or foreign regulatory authorities for support of a marketing application, approval of our product candidates may be significantly delayed, or we may be required to expend significant additional resources, which may not be available to us, to conduct additional clinical trials in support of potential approval of our product candidates.

We may not be successful in our efforts to use and expand our CID platform to build a pipeline of product candidates and develop marketable products.

We believe that our CID platform, which serves as the foundation of our CaspaCIDe and GoCAR-T technologies, can be further leveraged to discover other novel technologies, therapeutic applications and market opportunities. For example, we are developing new molecular switches and dual-switch systems to provide greater control over cellular immunotherapy. We are at an early stage of development and our platform has not yet, and may never lead to, approved or marketable products. Even if we are successful in continuing to build our pipeline, the potential product candidates that we identify may not be suitable for clinical development, including for reasons related to their harmful side effects, limited efficacy or other characteristics that indicate that they are unlikely to be products that will receive marketing approval and achieve market acceptance. If we do not successfully develop and commercialize product candidates based upon our technological approach, we may not be able to obtain product or partnership revenues in future periods, which would adversely affect our business, prospects, financial condition and results of operations.

We rely and will continue to rely on third parties to conduct our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval of or commercialize our product candidates.

We depend and will continue to depend upon independent investigators and collaborators, such as universities, medical institutions, and strategic partners to conduct our preclinical and clinical trials under agreements with us. Negotiations of

budgets and contracts with study sites may result in delays to our development timelines and increased costs. We will rely heavily on these third parties over the course of our clinical trials, and we control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with applicable protocol, legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our regulatory responsibilities. We and these third parties are required to comply with current good clinical practices, or cGCPs, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for product candidates in clinical development. Regulatory authorities enforce these cGCPs through periodic inspections of clinical trial sponsors, principal investigators and clinical trial sites. If we or any of these third parties fail to comply with applicable cGCP regulations, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities could require us to perform additional clinical trials before approving our marketing applications. It is possible that, upon inspection, such regulatory authorities could determine that any of our clinical trials fail to comply with the cGCP regulations. In addition, our clinical trials must be conducted with biologic product produced under current good manufacturing practices, or cGMPs, and will require a large number of test patients. Our failure or any failure by these third parties to comply with these regulations or to recruit a sufficient number of patients may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of these third parties violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Any third parties conducting our clinical trials are and will not be our employees and, except for remedies available to us under our agreements with these third parties, we cannot control whether they devote sufficient time and resources to our ongoing preclinical, clinical and nonclinical programs. These third parties may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug development activities, which could affect their performance on our behalf. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to complete development of, obtain regulatory approval of or successfully commercialize our product candidates. As a result, our financial results and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenue could be delayed.

Switching or adding third parties to conduct our clinical trials involves substantial cost and requires extensive management time and focus. In addition, there is a natural transition period when a new third party commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines.

Also, we are conducting multiple clinical trials in Europe and may plan additional testing of our technology and product candidates in other foreign jurisdictions. We currently have limited staffing and capabilities in foreign countries and may not be able to effectively resolve potential disputes with our independent investigators and collaborators.

If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons. The timely completion of clinical trials in accordance with their protocols depends, among other things, on our ability to enroll a sufficient number of patients who remain in the study until its conclusion. The enrollment of patients depends on many factors, including:

- the patient eligibility criteria defined in the protocol;
- the size of the patient population required for analysis of the trial’s primary endpoints;
- the proximity of patients to study sites;
- the design of the clinical trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- our ability to obtain and maintain patient consents;
- the risk that patients enrolled in clinical trials will drop out of the clinical trials before completion; and
- competing clinical trials and approved therapies available for patients.

In particular, some of our clinical trials will look to enroll patients with characteristics which are found in a very small population, for example, patients with rare cancers with specific attributes that are targeted with our product candidates. Our clinical trials will compete with other companies' clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition will reduce the number and types of patients available to us, because some patients who might have opted to enroll in our clinical trials may instead opt to enroll in a trial being conducted by one of our competitors. Since the number of qualified clinical investigators is limited, we expect to conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the number of patients who are available for our clinical trials in these clinical trial sites. Moreover, because our product candidates represent a departure from more commonly used methods for cancer treatment, potential patients and their doctors may be inclined to use conventional therapies, such as chemotherapy and antibody therapy, rather than enroll patients in any of our future clinical trials. Patients may also be unwilling to participate in our clinical trials because of negative publicity from adverse events in the biotechnology or gene therapy industries.

Delays in patient enrollment may result in increased costs or may affect the timing or outcome of the planned clinical trials, which could prevent completion of these clinical trials and adversely affect our ability to advance the development of our product candidates.

Any adverse developments that occur during any clinical trials conducted by academic investigators, our collaborators or other entities conducting clinical trials under independent INDs may affect our ability to obtain regulatory approval or commercialize our product candidates.

Rimiducid and rivo-cel are being used by third parties in clinical trials for which we are collaborating or in clinical trials which are completely independent of our development programs. We have little to no control over the conduct of those clinical trials. If serious adverse events occur during these or any other clinical trials using our product candidates, the FDA and other regulatory authorities may delay, limit or deny approval of our product candidate or require us to conduct additional clinical trials as a condition to marketing approval, which would increase our costs. If we receive regulatory approval for any product candidate and a new and serious safety issue is identified in clinical trials conducted by third parties, the applicable regulatory authorities may withdraw their approval of the product or otherwise restrict our ability to market and sell our product. In addition, treating physicians may be less willing to administer our product due to concerns over such adverse events, which would limit our ability to commercialize our product.

Adverse side effects or other safety risks associated with our product candidates could delay or preclude approval, cause us to suspend or discontinue clinical trials, abandon product candidates, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any.

In third party clinical trials involving CAR T cells, the most prominent acute toxicities included symptoms thought to be associated with the release of cytokines, such as fever, low blood pressure and kidney dysfunction. Some patients also experienced toxicity of the central nervous system, such as confusion, cranial nerve dysfunction and speech impairment. Adverse side effects attributed to CAR T cells were severe and life-threatening in some patients. The life-threatening events were related to kidney dysfunction and toxicities of the central nervous system. Severe and life-threatening toxicities occurred primarily in the first two weeks after cell infusion and generally resolved within three weeks. In the past, several patients have also died in clinical trials by others involving CAR T cells.

Undesirable side effects observed in our clinical trials, whether or not they are caused by our product candidates, could result in the delay, suspension or termination of clinical trials by us, the FDA or other regulatory authorities for a number of reasons. In addition, because the patients in our clinical trials are suffering from life-threatening diseases, are often suffering from multiple complicating conditions and, in the case of transplant patients, are in a position of extreme immune deficiency at the time that they receive our therapy, it may be difficult to accurately assess the relationship between our product candidates and adverse events experienced by very ill patients. For example, in January 2018, we announced that we had received notice from the FDA that a clinical hold had been placed on our U.S. clinical trials of rivo-cel following three cases of encephalopathy deemed as possibly related to rivo-cel. In April 2018, we announced that the FDA had lifted the clinical hold following consultation between us and the FDA and agreement on amendments to the study protocols, including guidance on monitoring and management of certain neurologic adverse events. The FDA or foreign regulatory authorities, including in Europe, could in the future take similar actions, which would harm our business. If we elect or are required to delay, suspend or terminate any clinical trial of any product candidates that we develop, the commercial prospects of such product candidates will be harmed and our ability to generate product revenues from any of these product candidates will be delayed or eliminated. Serious adverse events observed in clinical trials could hinder or prevent market acceptance of the product candidate at issue. Any of these occurrences may harm our business, prospects, financial condition and results of operations significantly.

Clinical trials are expensive, time-consuming and difficult to design and implement.

Human clinical trials are expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. Because our product candidates are based on relatively new technology and engineered on a patient-by-patient basis, we expect that they will require extensive research and development and have substantial manufacturing and processing costs. In addition, costs to treat patients with relapsed/refractory cancer and to treat potential side effects that may result from therapies such as our current and future product candidates can be significant. Accordingly, our clinical trial costs are likely to be significantly higher than for more conventional therapeutic technologies or drug products. In addition, our proposed personalized product candidates involve several complex and costly manufacturing and processing steps, the costs of which will be borne by us. The costs of our clinical trials may increase if the FDA does not agree with our clinical development plans or requires us to conduct additional clinical trials to demonstrate the safety and efficacy of our product candidates.

We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.*

The biopharmaceutical industry is characterized by intense competition and rapid innovation. Our competitors may be able to develop other compounds or drugs that are able to achieve similar or better results. Our potential competitors include major multinational pharmaceutical companies, established biotechnology companies, specialty pharmaceutical companies and universities and other research institutions. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff and experienced marketing and manufacturing organizations and well-established sales forces. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established companies. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors, either alone or with collaborative partners, may succeed in developing, acquiring or licensing on an exclusive basis drug or biologic products that are more effective, safer, more easily commercialized or less costly than our product candidates or may develop proprietary technologies or secure patent protection that we may need for the development of our technologies and products. We believe the key competitive factors that will affect the development and commercial success of our product candidates are efficacy, safety, tolerability, reliability, convenience of use, price and reimbursement.

Specifically, genetically engineering T cells faces significant competition from multiple companies, including

Adaptimmune, Allogene Therapeutics, Inc., Atara Biotherapeutics, Inc., Autolus Therapeutics plc, bluebird bio, Inc., Celgene Corporation, Cellectis SA, Cell Medica Limited, Celyad S.A., Fate Therapeutics Inc., GlaxoSmithKline plc, Intrexon Corporation, Immune Design Corp., Gilead Sciences, Inc., Iovance Biotherapeutics, Inc., Kiadis Pharma B.V., Lyell Immunopharma, Inc., Medigene AG, MolMed S.p.A., Mustang Bio, Inc., Novartis AG, Poseida Therapeutics, Precision Biosciences, Inc., Unum Therapeutics, and Ziopharm Oncology.

Our rivo-cel product candidate is designed to improve HSCT outcomes by addressing risks of disease relapse, infections and GVHD control. Other companies are developing product candidates to improve the outcome of HSCT, including Kiadis Pharma Netherlands B.V., Magenta Therapeutics, Inc., MolMed S.p.A., and Gamida Cell Ltd. Even if we obtain regulatory approval of our product candidates, the availability and price of our competitors' products could limit the demand and the price we are able to charge for our product candidates. We may not be able to implement our business plan if the acceptance of our product candidates is inhibited by price competition or the reluctance of physicians to switch from existing methods of treatment to our product candidates, or if physicians switch to other new drug or biologic products or choose to reserve our product candidates for use in limited circumstances. For additional information regarding our competition, see "Item 1. Business Competition" under Part I of our Annual Report.

Rivo-cel and rimiducid have received orphan drug designation, but we may be unable to maintain or receive the benefits associated with orphan drug status, including market exclusivity.

The FDA or EMA grant orphan designation to a drug or biologic intended to treat a rare disease or condition or for which there is no reasonable expectation that the cost of developing and making available in that jurisdiction a drug or biologic for a disease or condition will be recovered from sales in that jurisdiction for that drug or biologic. If a product that has orphan drug designation subsequently receives the first FDA or EMA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA or EMA may not approve any other applications, including a full authorization to market the same biologic for the same indication for seven years in the U.S. and for 10 years in Europe, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity.

The EMA has granted orphan drug designations to rivo-cel for treatment following HSCT, and for the activator agent, rimiducid for the treatment of GvHD. Additionally, rivo-cel and rimiducid have received orphan drug designation from the FDA, as a combination replacement T-cell therapy for the treatment of immunodeficiency and GvHD after allogeneic HSCT. However, in each case, exclusive marketing rights may be limited if we seek approval for an indication broader than the orphan designated indication and may be lost if the EMA or FDA, as applicable, later determines that the request for designation was materially defective or if we are unable to assure the availability of sufficient quantities of the product to meet the needs of patients with the rare disease or condition. Although the respective designations may provide seven years of market exclusivity in the U.S. and ten years of market exclusivity in Europe, the designations are subject to certain limited exceptions. Therefore, even though we have obtained orphan drug designation for certain indications, we may be unable to obtain orphan drug designation for our future product candidates and we may not be the first to obtain marketing approval for any particular orphan indication.

We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.*

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our management, scientific and medical personnel. The loss of the services of any of our executive officers, other key employees, and other scientific and medical advisors, and our inability to find suitable replacements could result in delays in product development and harm our business.

To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have provided stock options and restricted stock units, or RSUs, that vest over time. The value to employees of stock options and RSUs that vest over time 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. Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us on short notice. Although we have employment agreements with our key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. We do not maintain “key man” insurance policies on the lives of these individuals or the lives of any of our other employees. Our success also depends on our ability to continue to attract, retain and motivate highly skilled scientific and medical personnel.

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

As our development and commercialization plans and strategies develop, including the preparations for a potential launch of rivo-cel in Europe, we expect to need additional managerial, medical, operational, sales, marketing, market access financial and other personnel. Future growth imposes significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our internal development efforts effectively, including the clinical and regulatory review process for our product candidates, while complying with our contractual obligations to contractors and other third parties; and improving our operational, financial and management controls, reporting systems and procedures.

There are a small number of individuals with experience in cell therapy and the competition for these individuals is high. Our future financial performance and our ability to commercialize our product candidates will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities to devote a substantial amount of time to managing these growth activities. We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services, including substantially all aspects of regulatory approval, clinical management, and manufacturing. The services of independent organizations, advisors and consultants may not continue to be available to us on a timely basis when needed, and we may not be able to find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval of our product candidates or otherwise advance our business. We may not be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all.

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize our product candidates, and, accordingly, may not achieve our research, development and commercialization goals.

The terms of our debt facility place restrictions on our operating and financial flexibility, and failure to comply with covenants or to satisfy certain conditions of the agreement governing the debt facility may result in acceleration of our repayment obligations and foreclosure on our pledged assets, which could significantly harm our liquidity, financial condition, operating results, business and prospects and cause the price of our common stock to decline.

In December 2017, we entered into a loan and security agreement with Oxford Finance LLC, or Oxford, that is secured by a lien covering substantially all of our assets, excluding intellectual property, but including proceeds from the sale, license, or disposition of our intellectual property, under which we have borrowed $35.0 million. The loan and security agreement governing the debt facility requires us to comply with a number of covenants (affirmative and negative), including restrictive covenants that limit our ability to: incur additional indebtedness; encumber the collateral securing the loan; acquire, own or make investments; repurchase or redeem any class of stock or other equity interest; declare or pay any cash dividend or make a cash distribution on any class of stock or other equity interest; transfer a material portion of our assets; acquire other businesses; and merge or consolidate with or into any other organization or otherwise suffer a change in control, in each case subject to exceptions. Our intellectual property also is subject to customary negative covenants. In addition, subject to limited exceptions, Oxford could declare an event of default upon the occurrence of any event that it interprets as having a material adverse effect upon our business, operations, properties, assets, or financial condition or upon our ability to perform or pay the secured obligations under the loan and security agreement or upon the collateral or Oxford's liens on the collateral under the agreement, thereby requiring us to repay the loan immediately, together with a prepayment charge of up to 3% of the then outstanding principal balance and an end-of-term charge. Although, in and of itself, the occurrence of adverse results or delays in any clinical study or the denial, delay or limitation of approval of or taking of any other regulatory action by the FDA or another governmental entity will not constitute a material adverse effect under our loan and security agreement with Oxford, Oxford may determine that such an event together with contemporaneous events or circumstances constitutes a material adverse effect upon our business, operations, properties, assets, or financial condition or upon our ability to perform or pay the secured obligations under the loan and security agreement. If we default under the facility, Oxford may accelerate all of our repayment obligations and, if we are unable to access funds to meet those obligations or to renegotiate our agreement, Oxford could take control of our pledged assets and we could immediately cease operations. If we were to renegotiate our agreement under such circumstances, the terms may be significantly less favorable to us. If we were liquidated, Oxford's right to repayment would be senior to the rights of our stockholders to receive any proceeds from the liquidation. Any declaration by Oxford of an event of default could significantly harm our liquidity, financial condition, operating results, business, and prospects and cause the price of our common stock to decline.

We may incur additional indebtedness in the future. The debt instruments governing such indebtedness may contain provisions that are as, or more, restrictive than the provisions governing our existing indebtedness under the loan and security agreement with Oxford. If we are unable to repay, refinance or restructure our indebtedness when payment is due, the lenders could proceed against the collateral or force us into bankruptcy or liquidation.

If the London Inter-Bank Offered Rate, or LIBOR, is discontinued, interest payments under our credit agreement may be calculated using another reference rate.

In July 2017, the Chief Executive of the United Kingdom Financial Conduct Authority, or FCA, which regulates LIBOR, announced that the FCA intends to phase out the use of LIBOR by the end of 2021. In addition, the U.S. Federal Reserve, in conjunction with the Alternative Reference Rates Committee, a steering committee comprised of large U.S. financial institutions, is considering replacing U.S. dollar LIBOR with the Secured Overnight Financing Rate, or SOFR, a new index calculated by short-term repurchase agreements, backed by Treasury securities. Although there have been certain issuances utilizing SOFR, it is unknown whether this or any other alternative reference rate will attain market acceptance as a replacement for LIBOR. U.S. dollar LIBOR is used as a benchmark rate in our credit agreement with Oxford Finance LLC, and such credit agreement does not provide fallback language for all circumstances in which U.S. dollar LIBOR ceases to be published. There remains uncertainty regarding the future utilization of LIBOR and the nature of any replacement rate, and any potential effects of the transition away from LIBOR on us are not known. The transition process may involve, among other things, increased volatility and illiquidity in markets for instruments that currently rely on LIBOR and may result in increased borrowing costs, the effectiveness of related transactions such as hedges, uncertainty under applicable documentation, including our credit agreement with Oxford Finance LLC, or difficult and costly processes to amend such documentation. As a result, our ability to refinance our credit agreement or other indebtedness or to hedge our exposure to floating rate instruments may be impaired, which would adversely affect the operations of our business.

We need to oversee manufacturing of a complex supply chain of cellular therapy product candidates, viral vectors and small molecule drugs. We expect to rely on third parties to manufacture a substantial portion of our clinical cell therapy product candidates, viral vectors and small molecule supplies in Europe.

Because of the complex nature of our products, we need to oversee the manufacture of multiple components that require a diverse knowledge base and appropriate manufacturing personnel. The supply chain for these components is separate and distinct, and no single manufacturer can supply more than one component of each of our products. Additionally, it is likely that the cell therapy products will need to be made within an appropriate geographic location for the area in which the products will be utilized, so one cell therapy manufacturing facility may not be able to supply diverse geographic areas. Any lack of capabilities to store, freeze, thaw and infuse our cell therapies would adversely affect our business and prospects.

We do not currently own a European facility that may be used as our clinical-scale manufacturing and processing facility and must currently rely on outside vendors to manufacture supplies and process our product candidates, which is and will need to be done on a patient-by-patient basis. We have not yet caused our product candidates to be manufactured or processed on a commercial scale. We may not be able to scale patient-by-patient manufacturing and processing to satisfy clinical or commercial demands for any of our product candidates. In addition, our anticipated reliance on a limited number of third-party manufacturers for manufacturing in Europe exposes us to the following risks:

- We may be unable to identify manufacturers on acceptable terms or at all because the number of potential manufacturers is limited, and any replacement contractor must be approved by the EMA. This approval would require new testing and compliance inspections. In addition, a new manufacturer would have to be educated in, or develop substantially equivalent processes for, production of our products after receipt of regulatory approval, if any.
- Our third-party manufacturers might be unable to timely formulate and manufacture our product or produce the quantity and quality required to meet our clinical and commercial needs, if any.
- Our future contract manufacturers may not perform as agreed or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store and distribute our products.
- Manufacturers are subject to ongoing periodic unannounced inspection by regulatory agencies to ensure strict compliance with cGMP and other government regulations and standards. We do not have control over third-party manufacturers' compliance with these regulations and standards.
- We may not own, or may have to share, the intellectual property rights to any improvements made by our third-party manufacturers in the manufacturing process for our products.
- Our third-party manufacturers could breach or terminate their agreement with us.

Each of these risks could delay our clinical trials, the approval, if any of our product candidates by the EMA or the commercialization of our product candidates in Europe or result in higher costs or deprive us of potential product revenue. In addition, we will rely on third parties to perform release tests on our product candidates prior to delivery to patients. If these tests are not appropriately done and test data are not reliable, patients could be put at risk of serious harm.

The results of the United Kingdom's referendum on withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business.

The United Kingdom is currently negotiating the terms of its exit from the European Union, often referred to as "Brexit", which is scheduled for October 2019. In November 2018, the United Kingdom and the European Union agreed upon a draft withdrawal agreement, including a transition period to allow time for a future trade agreement to be agreed. To date, withdrawal agreements have been rejected by the U.K. Parliament, creating significant uncertainty about the terms under which the United Kingdom will leave the European Union. If no agreement can be reached and the United Kingdom leaves the European Union with no agreement, there will be a period of considerable uncertainty, particularly with respect to the free movement of goods, services, people, data and capital between the United Kingdom and the European Union. We may also face new regulatory costs and challenges that could have a material adverse effect on our operations. In this regard, the EMA has already issued a notice reminding marketing authorization holders of centrally authorized medicinal products for human and veterinary use of certain legal requirements that need to be considered as part of Brexit. Examples of the impact Brexit could have on our business, financial condition or results of operations include:

- regulatory uncertainty, notably United Kingdom legal entities (like our subsidiary Bellicum Pharma Limited) will no longer be eligible to apply for or hold centralized drug applications such as orphan drug designations and Marketing Authorization Applications;

- legal uncertainty and potentially divergent national laws and regulations as the United Kingdom determines which European Union laws and directives to replace or replicate, or where previously implemented by enactment of United Kingdom laws or regulations, to retain, amend or repeal; and

- various geopolitical forces that may impact the global economy and our business, including, for example, other E.U. member states in which we have operations proposing referendums to, or electing to, exit the European Union.

We have limited information available regarding the ultimate cost of our products, and cannot estimate what the cost of our products will be upon commercialization, should that occur.

We do not yet have sufficient information to reliably estimate the cost of the commercial manufacturing and processing of our product candidates, and the actual cost to manufacture and process our product candidates could materially and adversely affect the commercial viability of our product candidates, including rivo-cel. As a result, we may never be able to develop a commercially viable product. Because of the patient-specific nature of our manufacturing process, it is not amenable to traditional "scale up" to manufacture larger lots as is performed for traditional drugs and biological agents.

We have begun limited in-house manufacturing at our own manufacturing facility for supply of U.S. clinical product candidate requirements, and anticipated using this facility to meet US commercial cell therapy product requirements. This will require significant resources and expertise and we may fail to successfully complete or grow our manufacturing capabilities as planned, which could adversely affect our clinical trials and the commercial viability of our product candidates.

We have completed the buildout of manufacturing space at our leased headquarters in Houston, Texas and have begun in-house clinical supply manufacturing. We also rely on outside vendors to manufacture clinical supplies and process intermediates to support our clinical trials. Internal manufacturing for clinical trial and future commercial use will rely upon finding personnel with appropriate background and training to staff and operate the facility on a daily basis. Should we be unable to find these individuals, we may need to rely on external contractors longer than anticipated, and train additional personnel to fill the needed roles. There are a small number of individuals with experience in cell therapy and the competition for these individuals is high.

Specifically, the operation of a cell-therapy manufacturing facility is a complex endeavor requiring knowledgeable individuals who have successful previous experience in cleanroom environments. Cell therapy facilities, like other biological agent manufacturing facilities, require appropriate commissioning and validation activities to demonstrate that they operate as designed. Additionally, each manufacturing process must be proven through the performance of process validation runs to guarantee that the facility, personnel, equipment, and process work as designed. While we have developed our own manufacturing processes using an in-house team, there is timing risk associated with increased in-house product manufacture.

The manufacture of our product candidates is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of cell therapy products often encounter difficulties in production, particularly in scaling out and validating initial production and ensuring the absence of contamination. These include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, operator error, shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. Furthermore, if contaminants are discovered in our supply of product candidates or in our manufacturing facilities, the manufacturing facilities may need to be closed for an extended period to investigate and remedy the contamination. It is possible that stability or other issues relating to the manufacture of our product candidates could occur in the future.

Our product candidates currently are and will continue to be manufactured on a patient-by-patient basis. We have not yet manufactured our clinical trial product candidates on a large scale, nor on a commercial scale, and may not be able to achieve large scale clinical trial or commercial manufacturing and processing on our own to satisfy expected clinical trial or commercial demands for any of our product candidates. While we believe that our current manufacturing and processing approaches are appropriate to support our clinical product development, we have limited experience in managing the T cell engineering process, and our processes may be more difficult or more expensive than anticipated. The manufacturing processes employed by us may not result in product candidates that will be safe and effective.

Our manufacturing operations will be subject to review and oversight by the FDA upon commencement of the manufacturing of our product candidates for our planned Phase 3 clinical trials. We will have to complete facility validation, and must obtain approval from the FDA prior to licensure to manufacture our product candidates for these trials. Even if approved, we will continue to be subject to ongoing periodic unannounced inspection by the FDA, the Drug Enforcement Administration and corresponding state agencies to ensure strict compliance with current good manufacturing practices and other government regulations. Our license to manufacture product candidates will be subject to continued regulatory review.

We do not yet have sufficient information to reliably estimate the cost of commercial manufacturing and processing of our product candidates. The actual cost to manufacture and process our product candidates could materially and adversely affect the commercial viability of our product candidates. As a result, we may never be able to develop a commercially viable product.

We also may fail to manage the logistics of collecting and shipping patient material to our manufacturing site and shipping the product candidate back to the patient. Logistical and shipment delays and problems, whether or not caused by us or our vendors, could prevent or delay the delivery of product candidates to patients.

In addition, it is possible that we could experience manufacturing difficulties in the future due to resource constraints or because of labor disputes. If we were to encounter any of these difficulties, our ability to provide our product candidates to patients could be materially adversely affected.

Cell-based therapies rely on the availability of specialty raw materials, which may not be available to us on acceptable terms or at all.

Gene-modified cell therapy manufacture requires many specialty raw materials, some of which are manufactured by small companies with limited resources and experience to support a commercial product. Some suppliers typically support biomedical researchers or blood-based hospital businesses and may not have the capacity to support commercial products manufactured under cGMP by biopharmaceutical firms. The suppliers may be ill-equipped to support our needs, especially in non-routine circumstances like an EMA or FDA inspection or medical crisis, such as widespread contamination. We also do not have commercial supply arrangements with many of these suppliers and may not be able to contract with them on acceptable terms or at all. Accordingly, we may experience delays in receiving key raw materials to support clinical or commercial manufacturing.

In addition, some raw materials are currently available from a single supplier, or a small number of suppliers. We cannot be sure that these suppliers will remain in business, or that they will not be purchased by one of our competitors or another company that is not interested in continuing to produce these materials for our intended purpose.

We currently have a limited commercial organization and as a company have no experience in marketing cell therapy products. If we are unable to enhance our market access, marketing and sales capabilities or enter into agreements with third parties to market and sell our product candidates, we may not be able to generate product revenue.

We have established a European subsidiary, Bellicum Pharma Limited, that is focused on preparations for potential commercialization of rivo-cel in Europe, if approved. We have hired an experienced General Manager with commercial and operational experience and are hiring additional professionals experienced in market access, marketing and sales of pharmaceutical and biotechnology products. This team has very little experience in commercializing cell therapy products such as rivo-cel and the Company has never successfully commercialized any product candidate. We intend to expand and enhance our in-house marketing organization and plan to recruit a sales force, which will require significant capital expenditures, management resources and time. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and marketing, sales and other commercial personnel.

If we are unable or decide not to expand our internal sales, marketing, market access and distribution capabilities, we will pursue collaborative arrangements regarding the sales and marketing of our products, however, we may not be able to establish or maintain such collaborative arrangements, or if we are able to do so, that they may not have effective sales forces. Any revenue we receive will depend upon the efforts of such third parties, which may not be successful. We may have little or no control over the marketing and sales efforts of such third parties and our revenue from product sales may be lower than if we had commercialized our product candidates ourselves. We also face competition in our search for third parties to assist us with the sales and marketing efforts of our product candidates.

We may not be able to expand our in-house market access, marketing, sales and distribution capabilities or establish or maintain relationships with third-party collaborators to commercialize any product in Europe or the U.S.

A variety of risks associated with marketing our product candidates internationally could materially adversely affect our business.

We plan to seek regulatory approval of our product candidates, including rivo-cel, outside of the U.S. and, accordingly, we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

- differing regulatory requirements in foreign countries;
- unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the U.S.;
- potential liability under the FCPA or comparable foreign regulations;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the U.S.;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad;
- differing payor reimbursement regimes, governmental payors or patient self-pay systems and price controls; and
- business interruptions resulting from geo-political actions, including war and terrorism.

These and other risks associated with our international operations may materially adversely affect our ability to attain or maintain profitable operations.

We may form or seek strategic alliances or enter into additional licensing arrangements in the future, and we may not realize the benefits of such alliances or licensing arrangements.

We may form or seek strategic alliances, create joint ventures or collaborations and enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to our product candidates and any future product candidates that we may develop. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing stockholders or disrupt our management and business. In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. Moreover, we may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our product candidates because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our product candidates as having the requisite potential to demonstrate safety and efficacy. If we license products or businesses, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture. It is possible that, following a strategic transaction or license, we may not achieve the revenue or specific net income that justifies such transaction. Any delays in entering into new strategic partnership agreements related to our product candidates could delay the development and commercialization of our product candidates in certain geographies for certain indications, which would harm our business prospects, financial condition and results of operations.

Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Because we rely on third parties to manufacture our drug substance and our drug product, and because we collaborate with various organizations and academic institutions on the advancement of our technology platform, we must, at times, share trade secrets with them. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, collaborative research agreements, consulting agreements or other similar agreements with our collaborators, advisors, employees and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, such as trade secrets. Despite these contractual provisions, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may have a material adverse effect on our business.

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

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

We and our contractors utilize hazardous materials in our business operations, and any claims relating to improper handling, storage, or disposal of these materials could harm our business.

Our activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by our third-party manufacturers. Our manufacturers are subject to federal, state and local laws and regulations in the U.S. governing the use, manufacture, storage, handling and disposal of medical and hazardous materials, and similar laws in other geographic regions. Although we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from medical or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development and production efforts, which could harm our business, prospects, financial condition or results of operations.

Our internal computer systems, or those used by our clinical investigators, contractors or consultants, may fail or suffer security breaches.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses and unauthorized access. While we have not experienced any such material system failure or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our product candidates could be delayed.

System outages, network disruptions and cyber-security threats could interrupt the operation of our business.

We are dependent on the use of information technology systems for our operations. Outages, disruptions and threats could have an adverse impact on our ability to conduct operations. Cyber-security threats, such as malware, phishing and network attacks, are on the rise. These attacks can affect the availability of our information technology systems, including their data, as well as the confidentiality and integrity of these systems. A security breach poses a risk to confidential data, including but not limited to intellectual property and trade secrets resulting in financial, legal or reputational harm to us. Insider threats may exist if an individual authorized to access our technology systems improperly discloses sensitive data to unauthorized persons or the public. We also have outsourced elements of our operations, including elements of our information technology infrastructure, and thus manage several independent vendor relationships with third parties who may have access to our confidential information. Confidentiality agreements are in place for authorized users and third parties to support the prevention of confidential information being improperly disclosed. We have policies and procedures in place, including controls around the access and activity of authorized users, active system monitoring, back-up and recovery, information technology security and mandatory annual information technology security awareness training to assist in the prevention and mitigation of an outage, disruption or threat. In addition, we have invested in high availability, redundant technologies that will reduce the risk of an outage, disruption or threat. However, our efforts may not prevent an outage, disruption or threat that would materially adversely affect us. We also may not have sufficient liability insurance, either type or amount, to cover us against claims related to a cyber-security threat.

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

Our operations, and those of our clinical investigators, contractors and consultants, could be subject to power shortages, telecommunications failures, water shortages, floods, earthquakes, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or man-made disasters or business interruptions, for which we are predominantly self-insured. 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 and process our product candidates on a patient by patient basis. Our ability to obtain clinical supplies of our product candidates could be disrupted if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption.

Our employees, independent contractors, consultants, commercial partners and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk of employee fraud or other illegal activity by our employees, independent contractors, consultants, commercial partners and vendors. Misconduct by these parties could include intentional, reckless and/or negligent conduct that fails to: comply with the laws of the FDA and other similar foreign regulatory bodies; provide true, complete and accurate information to the FDA and other similar foreign regulatory bodies, comply with manufacturing standards we have established, comply with healthcare fraud and abuse laws in the U.S. and similar foreign fraudulent misconduct laws, or report financial information or data accurately or to disclose unauthorized activities to us. If we obtain FDA approval of any of our product candidates and begin commercializing those products in the U.S., our potential exposure under such laws will increase significantly, and our costs associated with compliance with such laws are also likely to increase. These laws may impact, among other things, our current activities with principal investigators and research patients, as well as proposed and future sales, marketing and education programs. In particular, the promotion, sales and marketing of healthcare items and services, as well as certain business arrangements in the healthcare industry, are subject to extensive laws designed to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, structuring and commission(s), certain customer incentive programs and other business arrangements generally. Activities subject to these laws also involve the improper use of information obtained in the course of patient recruitment for clinical trials. The laws that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe, or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual for, or the purchase, lease, order or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs;
- federal civil and criminal false claims laws and civil monetary penalties law, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid, or other third-party payors that are false or fraudulent or knowingly making a false statement to improperly avoid, decrease or conceal an obligation to pay money to the federal government;

- HIPAA, which created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters;
- HIPAA, as amended HITECH, and their respective implementing regulations, which impose requirements on certain covered healthcare providers, health plans, and healthcare clearinghouses as well as their respective business associates that perform services for them that involve the use, or disclosure of, individually identifiable health information, relating to the privacy, security and transmission of individually identifiable health information without appropriate authorization;
- the federal Physician Payment Sunshine Act, and its implementing regulations, which requires certain manufacturers of drugs, devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to the HHS, information related to payments or other transfers of value made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as require certain manufacturers and group purchasing organizations to report annually ownership and investment interests held by physicians and their immediate family members;
- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers; and
- foreign laws that govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by or are in conflict with HIPAA, including the European Union General Data Protection Regulation, or the GDPR, which became effective on May 25, 2018, and which imposes privacy and security obligations on any entity that collects and/or processes health data from individuals located in the European Union. Under the GDPR, fines of up to 20 million euros or up to 4% of the annual global turnover of the infringer, whichever is greater, could be imposed for significant non-compliance. As well as complicating our compliance efforts, non-compliance with these laws could result in penalties or significant legal liability. The GDPR includes more stringent operational requirements for processors and controllers of personal data and creates additional rights for data subjects. Additionally, Brexit could lead to further legislative and regulatory changes. While the Data Protection Act of 2018, that "implements" and complements the GDPR has achieved Royal Assent on May 23, 2018 and is now effective in the United Kingdom, it is still unclear whether transfer of data from the EEA to the United Kingdom will remain lawful under the GDPR. We may incur liabilities, expenses, costs, and other operational losses under the GDPR and applicable EU Member States and the United Kingdom privacy laws in connection with any measures we take to comply with them.

Additionally, we are subject to state and foreign equivalents of each of the healthcare laws described above, among others, some of which may be broader in scope and may apply regardless of the payor.

We have adopted a code of business conduct and ethics, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent inappropriate conduct 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. Efforts to ensure that our business arrangements will comply with applicable healthcare laws may involve substantial costs. It is possible that governmental and enforcement authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law interpreting applicable fraud and abuse or other healthcare laws and 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, including the imposition of civil, criminal and administrative penalties, damages, disgorgement, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, individual imprisonment, additional reporting requirements and/or oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations. In addition, the approval and commercialization of any of our product candidates outside the U.S. will also subject us to foreign equivalents of the healthcare laws mentioned above, among other foreign laws.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our product candidates.

We face an inherent risk of product liability as a result of the clinical testing of our product candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if our product candidates cause or are perceived to cause injury or are found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit or cease commercialization of our product candidates. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product candidates;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to clinical trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize any product candidate; and
- a decline in our share price.

Our inability to obtain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of any products we develop, alone or with corporate collaborators. We currently carry $10.0 million of product liability insurance covering our clinical trials, with other coverage limits as appropriate for certain foreign jurisdictions. Although we maintain such insurance, our insurance policies may have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts. Even if our agreements with any future corporate collaborators entitle us to indemnification against losses, such indemnification may not be available or adequate should any claim arise.

Comprehensive tax reform could adversely affect our business and financial condition.

On December 22, 2017, the president of the United States signed into law the Tax Cuts and Jobs Act which significantly revises the Internal Revenue Code of 1986, as amended. The Tax Cuts and Jobs 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 taxable income (except for certain small businesses), limitation of the deduction for net operating losses carried forward from taxable years beginning after December 31, 2017 to 80% of current year taxable income and elimination of net operating loss carrybacks, one-time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the Tax Cuts and Jobs Act is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the Tax Cuts and Jobs Act. The impact of the Tax Cuts and Jobs Act on holders of our securities is likewise uncertain and could be adverse. We urge our stockholders to consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our securities.

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

As of December 31, 2018, we had aggregate U.S. and U.K. net operating loss carryforwards of approximately $303.0 million and $2.4 million, respectively, and aggregate U.S. federal and Texas state research and development credits of approximately $8.9 million and $4.7 million, respectively. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the Tax Cuts and Jobs Act, federal net operating losses incurred in taxable years ending after December 31, 2017 may be carried forward indefinitely, but the deductibility of federal net operating losses generated in tax years beginning after December 31, 2017 is limited. It is uncertain if and to what extent various states will conform to the Tax Cuts and Jobs Act. In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an "ownership change" (which is generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period), the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We may have experienced one or more ownership changes in the past and we may also experience additional ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

Risks Related to Government Regulation

The regulatory approval process is lengthy and time-consuming, and we may experience significant delays in the clinical development and regulatory approval of our product candidates.

We have not previously submitted an MAA or a BLA to the EMA or FDA, or similar approval filings to other foreign authorities. An MAA/BLA must include extensive preclinical and clinical data and supporting information to establish the product candidate's safety, purity and potency for each desired indication. It must also include significant information regarding the chemistry, manufacturing and controls for the product. We expect the novel nature of our product candidates to create further challenges in obtaining regulatory approval. For example, the FDA has limited experience with commercial development of T cell therapies for cancer. In addition, the cell and gene therapy office of the FDA has limited experience with combination products that include a small molecule component. Approval of our product candidates, including rivo-cel, will require this FDA office to consult with another division of the FDA, which may result in further challenges in obtaining regulatory approval, including in developing final product labeling. The regulatory approval pathway for our product candidates may be uncertain, complex, expensive and lengthy, and approval may not be obtained.

We may also experience delays in completing planned clinical trials for a variety of reasons, including delays related to:

- the availability of financial resources to commence and complete our planned clinical trials;
- reaching agreement on acceptable terms with prospective clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different clinical trial sites;
- recruiting suitable patients to participate in a clinical trial;
- having patients complete a clinical trial or return for post-treatment follow-up;
- clinical trial sites deviating from clinical trial protocol, failing to follow GCPs, or dropping out of a clinical trial;
- adding new clinical trial sites; or
- manufacturing sufficient quantities of qualified materials under cGMPs and applying them on a subject by subject basis for use in clinical trials.

For example, in January 2018 we announced that we had received notice from the FDA that a clinical hold had been placed on our U.S. clinical trials of rivo-cel following three cases of encephalopathy deemed as possibly related to rivo-cel. In April 2018, we announced that the FDA had lifted the clinical hold following consultation between us and the FDA and agreement on amendments to the study protocols, including guidance on monitoring and management of certain neurologic adverse events.

Also, before a clinical trial can begin at an NIH-funded institution, that institution's independent institutional review board, or IRB, and its Institutional Biosafety Committee must review the proposed clinical trial to assess the safety of the trial. In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other regulatory bodies to change the requirements for approval of any of our product candidates.

We could also encounter delays if physicians encounter unresolved ethical issues associated with enrolling patients in clinical trials of our product candidates in lieu of prescribing existing treatments that have established safety and efficacy profiles.

Further, a clinical trial may be suspended or terminated by us, the IRBs for the institutions in which such clinical trials are being conducted, the Data Monitoring Committee for such clinical trial, or by the FDA or other regulatory authorities due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or clinical trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we experience termination of, or delays in the completion of, any clinical trial of our product candidates, the commercial prospects for our product candidates will be harmed, and our ability to generate product revenue will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product development and approval process and jeopardize our ability to commence product sales and generate revenue.

Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may ultimately lead to the denial of regulatory approval of our product candidates.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, while a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the EU or U.S., including additional preclinical studies or clinical trials. Studies and clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions.

We may also submit marketing applications in other countries. Regulatory authorities in jurisdictions outside of the EU and U.S. have requirements for approval of product candidates with which we must comply prior to marketing in those jurisdictions. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

Even if we receive regulatory approval of our product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties and/or withdrawal of product approval if we fail to comply with regulatory requirements or experience unanticipated problems with our product candidates.

Any regulatory approvals that we receive for our product candidates will require surveillance to monitor the safety and efficacy of the product candidate. The EMA and FDA may also require a Risk Evaluation and Mitigation Strategy, or REMS, in order to approve our product candidates, which could entail requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the EMA, FDA or a comparable foreign regulatory authority approves our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our product candidates will be subject to extensive and ongoing regulatory requirements. These requirements include, among other things, submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs and cGCPs for any clinical trials that we conduct post-approval. Later discovery of previously unknown problems with our product candidates, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of our product candidates, withdrawal of the product from the market, or voluntary or mandatory product recalls;
- fines, warning letters or holds on clinical trials;
- refusal by the EMA or FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of license approvals;
- suspension or termination of manufacturing at one or more manufacturing facilities;
- product seizure or detention, or refusal to permit the import or export of our product candidates; and

- injunctions or the imposition of civil or criminal penalties.

The EMA's, FDA's and other regulatory authorities' policies may change, and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in Europe, the U.S. or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained, and we may not achieve or sustain profitability.

Foreign legislative changes may also affect our ability to commercialize our product candidates. Effective as of May 25, 2018, the GDPR imposes privacy and security obligations on any entity that collects and/or processes personal information from individuals located in the European Union. Under the GDPR, fines of up to 20 million euros or up to 4% of the annual global turnover of the infringer, whichever is greater, could be imposed for significant non-compliance.

Even if we obtain regulatory approval of our product candidates, the products may not gain market acceptance among physicians, patients, hospitals, cancer treatment centers, third-party payors and others in the medical community.

The use of engineered T cells as a potential cancer treatment is a recent development and may not become broadly accepted by physicians, patients, hospitals, cancer treatment centers, third-party payors and others in the medical community. We expect physicians in the large bone marrow transplant centers to be particularly influential and we may not be able to convince them to use our product candidates for many reasons. Many factors will influence whether our product candidates are accepted in the market, including:

- the clinical indications for which our product candidates are approved;
- physicians, hospitals, cancer treatment centers and patients considering our product candidates as a safe and effective treatment;
- the potential and perceived advantages of our product candidates over alternative treatments;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the EMA, FDA or other regulatory authorities;
- limitations or warnings contained in the labeling approved by the EMA, FDA or other regulatory authorities;
- the extent and quality of the clinical evidence supporting the efficacy and safety of our product candidates;
- the timing of market introduction of our product candidates as well as competitive products;
- the cost of treatment in relation to alternative treatments;
- the availability of adequate reimbursement and pricing by third-party payors and government authorities;
- the willingness and ability of patients to pay out-of-pocket in the absence of coverage by third-party payors, including government authorities;
- relative convenience and ease of administration, including as compared to alternative treatments and competitive therapies;
- confusion or lack of understanding regarding the effects of rimiducid and the timing and size of dosing of rimiducid after immune cell therapy; and
- the effectiveness of our sales and marketing efforts.

In addition, although we are not utilizing embryonic stem cells or replication competent vectors, adverse publicity due to the ethical and social controversies surrounding the therapeutic use of such technologies, and reported side effects from any clinical trials using these technologies or the failure of such clinical trials to demonstrate that these therapies are safe and effective may limit market acceptance our product candidates. If our product candidates are approved but fail to achieve market acceptance among physicians, patients, hospitals, cancer treatment centers or others in the medical community, we will not be able to generate significant revenue.

Even if our products achieve market acceptance, we may not be able to maintain that market acceptance over time if new products or technologies are introduced that are more favorably received than our products, are more cost effective or render our products obsolete.

Coverage and reimbursement may be limited or unavailable in certain market segments for our product candidates, which could make it difficult for us to sell our product candidates profitably.

Market acceptance and sales of our product candidates will depend in large part on global reimbursement policies and may be affected by future healthcare reform measures, both in the United States and other key international markets. Patients who are prescribed medicine for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Patients are unlikely to use our products unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our products. Therefore, successful commercialization of our products will depend in part on the availability of governmental and third-party payor reimbursement for the cost of our product candidates and/or payment to the physician for administering our product candidates. In the United States, no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be obtained. One third-party payor's decision to cover a particular medical product or service does not assure that other payors will also provide coverage for the medical product or service, or to provide coverage at an adequate reimbursement rate. As a result, the coverage determination process will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that adequate coverage and reimbursement will be obtained. Further, a third-party payor's decision to provide coverage for a medical product or service does not imply that an adequate reimbursement rate will be approved. The market for our product candidates will depend significantly on access to third-party payors' formularies or lists of treatments for which third-party payors provide coverage and reimbursement. Third party payors may also have difficulty in determining the appropriate coverage of our product candidates, if approved, including rivo-cel, due to the fact that they are combination products that include a small molecule drug, rimiducid.

Third-party payors establish coverage and reimbursement policies for new products, including product candidates like rivo-cel and our other product candidates. In particular, in the United States, private health insurers and other third-party payors often provide reimbursement for treatments based on the level at which the government (through the Medicare or Medicaid programs) provides reimbursement for such treatments. In the United States, the EEA and other significant or potentially significant markets for our product candidate, 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. Further, the increased emphasis on managed healthcare in the United States and on country and regional pricing and reimbursement controls in Canada and the EEA will put additional pressure on product pricing, coverage, reimbursement and utilization, which may adversely affect our product sales and results of operations. These pressures can arise from policies and practices of managed care groups, judicial decisions and governmental laws and regulations related to Medicare, Medicaid and healthcare reform, coverage and reimbursement policies and pricing in general. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the PPACA, became law in the United States. PPACA substantially changes the way healthcare is financed by both governmental and private insurers and significantly affects the pharmaceutical industry. Among the provisions of the PPACA of greatest importance to the pharmaceutical industry are the following: (i) an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs; (ii) an increase in the rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for branded and generic drugs, respectively; (iii) a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts to negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; (iv) extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations; (v) expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals with income at or below 133% of the Federal Poverty Level, thereby potentially increasing manufacturers' Medicaid rebate liability; (vi) expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program; (vii) expansion of health care fraud and abuse laws, including the federal civil False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance; and (viii) a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

Since its enactment there have been judicial and Congressional challenges to other aspects of the PPACA, as well as recent efforts by the Trump administration to repeal or replace certain aspects of the PPACA. Since January 2017, President Trump has signed two Executive Orders designed to delay the implementation of certain provisions of the PPACA or otherwise circumvent some of the requirements for health insurance mandated by the PPACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the PPACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the PPACA have been signed into law. The Tax Cuts and Jobs Act of 2017 includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the PPACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain PPACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Congress may consider other legislation to replace elements of the PPACA. We continue to evaluate the potential effect of the possible repeal and replacement of the PPACA may have on our business.

In addition, other legislative changes have been proposed and adopted in the United States since the PPACA. For example, through the process created by the Budget Control Act of 2011, there are automatic reductions of Medicare payments to providers up to 2% per fiscal year, which went into effect in April 2013 and, following passage of the Bipartisan Budget Act of 2015, will remain in effect through 2025 unless additional Congressional action is taken. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to several providers.

Further, recently there has been heightened governmental scrutiny in the United States over the manner in which drug manufacturers set prices for their marketed products, in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent congressional inquiries and proposed federal legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. We expect that additional federal and state healthcare reform measures will be adopted in the future, any of which could result in reduced demand for our products or other adverse effects on our business.

In the EU, the success of rivo-cel and our other product candidates, if approved, will depend largely on obtaining and maintaining government reimbursement, because in many European countries patients are unlikely to use therapies that are not reimbursed by the government. Negotiating prices with governmental authorities can delay commercialization by 12 months or more. Reimbursement policies may adversely affect our ability to sell our products on a profitable basis. In many international markets, governments control the prices of prescription pharmaceuticals, including through the implementation of reference pricing, price cuts, rebates, revenue-related taxes and profit control, and expect prices of prescription pharmaceuticals to decline over the life of the product or as volumes increase. Recently, many countries in the EEA have increased the amount of discounts required on pharmaceutical products and other therapies, and we expect these discounts to continue as countries attempt to manage healthcare expenditures, especially in light of current economic conditions. As a result of these pricing practices, it may become difficult to achieve profitability or expected rates of growth in revenue or results of operations. Any shortfalls in revenue could adversely affect our business, prospects, financial condition and results of operations.

Certain countries have a very difficult reimbursement environment and we may not obtain reimbursement or pricing approval, if required, in all countries where we expect to market a product, or we may obtain reimbursement approval at a level that would make marketing a product in certain countries not viable.

We expect to experience pricing pressures in connection with the sale of rivo-cel and rimiducid, if approved, and any other products that we may develop, due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative proposals. If we fail to successfully secure and maintain adequate coverage and reimbursement for our products or are significantly delayed in doing so, we will have difficulty achieving market acceptance of our products and expected revenue and profitability which would have a material adverse effect on our business, prospects, financial condition and results of operations.

Due to the novel nature of our technology and the small size of our target patient populations, we face uncertainty related to pricing and reimbursement for these product candidates.

Our target patient populations for rivo-cel and our other potential product candidates are relatively small, as a result, the pricing and reimbursement of our product candidates, if approved, must be adequate to support commercial and manufacturing infrastructure. If we are unable to obtain adequate levels of reimbursement, our ability to successfully market and sell our product candidates will be adversely affected. The manner and level at which reimbursement is provided for services related to our product candidates, for example, reimbursement for administration of our product candidates to patients, is also important. Inadequate reimbursement for such services may lead to physician resistance and adversely affect our ability to market or sell our products.

We are subject to certain U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations, or collectively, Trade Laws. We can face serious consequences for violations.

Among other matters, Trade Laws prohibit companies and their employees, agents, clinical research organizations, legal counsel, accountants, consultants, contractors, and other partners from authorizing, promising, offering, providing, soliciting, or receiving directly or indirectly, corrupt or improper payments or anything else of value to or from recipients in the public or private sector. Violations of Trade Laws can result in substantial criminal fines and civil penalties, imprisonment, the loss of trade privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We engage third parties for clinical trials and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We also expect our non-U.S. activities to increase in time. We can be held liable for the corrupt or other illegal activities of our personnel, agents, or partners, even if we do not explicitly authorize or have prior knowledge of such activities.

We are subject to extensive laws and regulations related to data privacy, and our failure to comply with these laws and regulations could harm our business.

We are subject to laws and regulations governing data privacy and the protection of personal information. These laws and regulations govern our processing of personal data, including the collection, access, use, analysis, modification, storage, transfer, security breach notification, destruction and disposal of personal data. There are foreign and state law versions of these laws and regulations to which we are currently and/or may in the future, be subject. For example, the collection and use of personal health data in the European Union is governed by the GDPR. The GDPR, which is wide-ranging in scope, imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the security and confidentiality of the personal data, data breach notification and the use of third-party processors in connection with the processing of personal data. The GDPR also imposes strict rules on the transfer of personal data out of the European Union to the United States, provides an enforcement authority and imposes large monetary penalties for noncompliance. The GDPR requirements apply not only to third-party transactions, but also to transfers of information within our company, including employee information. The GDPR and similar data privacy laws of other jurisdictions place significant responsibilities on us and create potential liability in relation to personal data that we or our third party service providers process, including in clinical trials conducted in the United States and European Union. In addition, we expect that there will continue to be new proposed laws, regulations and industry standards relating to privacy and data protection in the United States, the European Union and other jurisdictions, and we cannot determine the impact such future laws, regulations and standards may have on our business.

Additionally, California recently enacted legislation that has been dubbed the first “GDPR-like” law in the United States. Known as the California Consumer Privacy Act, or CCPA, it creates new individual privacy rights for consumers (as that word is broadly defined in the law) and places increased privacy and security obligations on entities handling personal data of consumers or households. When it becomes effective on January 1, 2020, the CCPA will require covered companies to provide new disclosures to California consumers, provide such consumers new ways to opt-out of certain sales of personal information, and allow for a new cause of action for data breaches. Legislators have stated that amendments will be proposed to the CCPA before it goes into effect, but it remains unclear what, if any, modifications will be made to this legislation or how it will be interpreted. As currently written, the CCPA will likely impact (possibly significantly) our business activities and exemplifies the vulnerability of our business to not only cyber threats but also the evolving regulatory environment related to personal data and protected health information.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, the U.S. Foreign Corrupt Practices Act of 1977, as amended, or FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. We may engage third parties for clinical trials outside of the United States, to sell our products abroad once we enter a commercialization phase, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

Changes in funding for the FDA, the SEC and other government agencies could hinder their ability to hire and retain key leadership and other personnel, prevent new products from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal functions on which the operation of our business may rely, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept payment of user fees, and statutory, regulatory, and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of the SEC and other government agencies on which our operations may rely, including those that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including beginning on December 22, 2018 and ending on January 25, 2019, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough critical FDA, SEC and other government employees and stop critical activities. If repeated or prolonged government shutdowns occur, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Further, future government shutdowns could impact our ability to access the public markets and obtain necessary capital in order to properly capitalize and continue our operations.

Risks Related to Our Intellectual Property

We depend on intellectual property licensed from third parties and termination of any of these licenses could result in the loss of significant rights, which would harm our business.

We are dependent on patents, know-how and proprietary technology, both our own and licensed from others. We license from Baylor College of Medicine, or Baylor, certain intellectual property related to methods for activating antigen presenting cells, to certain genetic constructs and to certain methods for inducing apoptosis. Baylor may terminate or modify our licenses in the event of a material breach by us that remains uncured following the date that is 90 days after written notice of such breach or upon certain insolvency events that remain uncured following the date that is 30 days following written notice of such insolvency event. In addition, we have funded certain of our ongoing clinical development and will fund certain of our future clinical development with funds from the State of Texas. The State of Texas may have rights to commercialize the results of those clinical trials if it determines that we have failed, after notice and an opportunity to cure, to use diligent and commercially reasonable efforts to commercialize or otherwise bring to practical application the results of the funded clinical trials. We are also dependent on our license agreements with Agensys, Inc. (a subsidiary of Astellas Pharma, Inc.) with respect to PSCA-targeted CARs, Leiden University with respect to certain TCRs and BioVec Pharma Inc. with respect to making retrovirus for all of our programs. The termination of any of these licenses could have a material adverse effect on our business.

Any termination of these agreements, or other agreements to which we are a party could result in the loss of significant rights and could harm our ability to commercialize our product candidates. See "Item 1. Business—Our License Agreements" in our Annual Report on Form 10-K for the year ended December 31, 2018 for additional information regarding our license agreements.

Disputes may also arise between us and our licensors and other partners regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates, and what activities satisfy those diligence obligations; and
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners.

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

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license, as we are for intellectual property that we own. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer.

If our efforts to protect the proprietary nature of our technologies are not adequate, we may not be able to compete effectively in our market.

Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market. Certain intellectual property which is covered by our in-license agreements has been developed at academic institutions which have retained non-commercial rights to such intellectual property.

There are several pending U.S. and foreign patent applications in our portfolio, and we anticipate additional patent applications will be filed both in the U.S. and in other countries, as appropriate. However, we cannot predict:

- if and when patents will issue;
- the degree and range of protection any issued patents will afford us against competitors including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- whether or not others will obtain patents claiming aspects similar to those covered by our patents and patent applications; or
- whether we will need to initiate litigation or administrative proceedings which may be costly whether we win or lose.

Composition of matter patents for biological and pharmaceutical products are generally considered to be the strongest form of intellectual property. We cannot be certain that the claims in our pending patent applications directed to compositions of matter for our product candidates will be considered patentable by the U.S. Patent and Trademark Office, or the USPTO, or by patent offices in foreign countries, or that the claims in any of our issued patents will be considered valid by courts in the U.S. or foreign countries. Method of use patents have claims directed to the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products “off-label.” Although off-label prescriptions may infringe or contribute to the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or prosecute.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our product candidates or uses thereof in the U.S. or in other foreign countries. Even if the patents do successfully issue, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, patents in our portfolio may not adequately exclude third parties from practicing relevant technology or prevent others from designing around our claims. If the breadth or strength of our intellectual property position with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market our product candidates under patent protection would be reduced. Since patent applications in the U.S. and most other countries are confidential for a period of time after filing, it is possible that patent applications in our portfolio may not be the first filed patent applications related to our product candidates. Furthermore, for U.S. applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third-party or instituted by the USPTO, to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. For U.S. applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law with the passage of the America Invents Act (2012) which brings into effect significant changes to the U.S. patent laws that are yet untried and untested, and which introduces new procedures for challenging pending patent applications and issued patents. A primary change under this reform is creating a “first to file” system in the U.S. This will require us to be cognizant going forward of the time from invention to filing of a patent application.

Patent coverage on the dimerization molecule rimiducid, expired in February 2016. Therefore, any additional barriers to entry for competitors to use rimiducid may not be effective in preventing such use. There remain significant questions regarding how the FDA will interpret the ‘biosimilar’ provisions recently added to the PHSA as applied to complex biological products such as our investigational products. Depending on how the FDA ultimately interprets these provisions, if our investigational products incorporating rimiducid receive FDA approval through a combination product BLA, then a biosimilar of these combination products could be approved by the FDA twelve years from the date that we receive FDA approval for our application. In addition, if a third party were able to obtain FDA approval of a new drug application for rimiducid on its own, then it is possible that other third parties could later seek approval of an abbreviated new drug application for rimiducid.

We rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our product discovery and development processes that involve proprietary know-how, information, or technology that is not covered by patents. We require all of our employees to assign their inventions to us, and require all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information, or technology to enter into confidentiality agreements; however, it is possible that our trade secrets and other confidential proprietary information could be disclosed or that competitors may otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the U.S. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the U.S. and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition.

Third-party claims of intellectual property infringement may prevent or delay our product discovery and development efforts.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including interference and reexamination proceedings before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions. Recently, under U.S. patent reform, new procedures including *inter parties* review and post grant review have been implemented. As stated above, this reform is untried and untested and will bring uncertainty to the possibility of challenge to our patents in the future. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may give rise to claims of infringement of the patent rights of others.

Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents, of which we are currently unaware or have not sufficiently analyzed with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. If any third-party patents were held by a court of competent jurisdiction to cover aspects of our formulations, the manufacturing process of our product candidates, constructs or molecules used in or formed during the manufacturing process, methods of use, including combination therapy or patient selection methods or any final product itself, the holders of any such patents may be able to block our ability to develop and commercialize the product candidate unless we obtained a license under the applicable patents, or until such patents expire or they are finally determined to be held invalid or unenforceable. In either case, such a license may not be available on commercially reasonable terms or at all. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, or at all, our ability to commercialize our product candidates may be impaired or delayed, which could in turn significantly harm our business.

Parties making claims against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our product candidates. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. It is possible that any such license would not be available at all or on commercially reasonable terms. Furthermore, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize our product candidates, which could harm our business significantly.

For example, we are aware of a third-party patent having claims directed to chimeric DNA comprising DNA segments encoding (1) a single chain antibody domain and (2) transmembrane and cytoplasmic domains of an endogenous protein. Even though we have reason to believe that our product candidates are not covered by claims of this patent, an owner or licensee of the patent still might bring a patent infringement suit against us. If the patent is asserted against us, we may not prevail in defending against claims of infringement and/or challenging the validity of claims in the patent. We may not successfully develop alternative technologies or enter into an agreement by which we obtain rights to the patent. These rights, if necessary, may not be available on terms acceptable to us.

We are aware of third-party patents having claims that may be considered as being directed to single-chain antibody fragments that bind to PSCA and these patents may be considered relevant to BPX-601 and related technologies we are developing. We currently are evaluating whether or not we need to obtain rights to these patents under a license, and if it is determined that we need to obtain such rights, whether these rights can be obtained. We are also aware of third-party patent applications having claims that may be considered as being directed to cellular therapy constructs utilizing a heterodimer domain for activation of iC9. We are monitoring these applications and if they are granted with the claims as drafted they may be relevant to our potential dual-switch product candidates containing such a heterodimer activation domain.

Also, while we are aware there are other third-party patents having claims that may be considered relevant to technologies for which we are seeking, or plan to seek, regulatory approval, we believe those patents have a patent term that may expire prior to the time we expect to obtain regulatory approval for these technologies. The estimated expiration dates for those patents were determined according to information on the face pages of the patents, and certain factors that could influence patent term, such as patent term adjustment and patent term extension, for example, were not factored into these estimates. Accordingly, the estimated expiration dates of those patents may not be accurate and one or more of those patents may not expire before we obtain regulatory approval for an applicable technology. Owners or licensees of one or more of those patents may bring a patent infringement suit against us. If one or more of those patents are asserted against us, we may be able to assert a defense for a safe harbor to patent infringement under 35 U.S.C. 271(e)(1) if certain requirements are met. It is possible that (1) certain of these requirements may not be met, and/or (2) one or more of the third-party patents might expire after one or more of our technologies obtain regulatory approval, and consequently we may not successfully assert such a defense to patent infringement. If we are unsuccessful in asserting a defense under 35 U.S.C. 271(e)(1), it is possible we may not prevail in defending against claims of infringement and/or challenging the validity of claims in those patents. We may not successfully develop alternative technologies or enter into agreements by which we obtain rights to applicable patents. These rights, if necessary, may not be available on terms acceptable to us.

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

Because our programs may involve additional product candidates that may require the use of proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights.

Our product candidates may also require specific formulations to work effectively and efficiently and these rights may be held by others. We may be unable to acquire or in-license any compositions, methods of use, processes or other third-party intellectual property rights from third parties that we identify. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology.

The licensing and acquisition of third-party intellectual property rights is a competitive area, and companies, which may be more established, or have greater resources than we do, may also be pursuing strategies to license or acquire third-party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. More established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities.

We may not be able to successfully complete negotiations and ultimately acquire the rights to the intellectual property that we may seek to acquire in the future.

We may be involved in lawsuits or other proceedings to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that one or more of our patents is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable, or interpreted narrowly and could put our patent applications at risk of not issuing. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. It also is possible that a competitor we sue for patent infringement could countersue us for allegedly infringing one or more of their own patents or one or more patents they licensed from another entity. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure.

Interference proceedings provoked by third parties or brought by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could result in a loss of our patent rights and could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. It also is possible that third parties could institute a patent office post-grant proceeding against one or more of our patents, or one or more patents licensed to us, such as a post grant review proceeding, inter parties review proceeding or reexamination proceeding at the USPTO, or an opposition proceeding in a jurisdiction outside the U.S. An unfavorable outcome in a post-grant proceeding could result in a loss of our patent rights. Litigation, interference proceedings or patent office post-grant proceedings may result in a decision adverse to our interests and, even if we are successful, may result in substantial costs and distract our management and other employees. We also may not be able to prevent, alone or with our licensors, misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the U.S.

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 securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Obtaining and maintaining our patents depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent position could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. 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. Noncompliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. Such noncompliance events are outside of our direct control for (1) non-U.S. patents and patent applications owned by us, and (2) patents and patent applications licensed to us by another entity. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court or the USPTO.

If we or one of our licensing partners initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate, as applicable, is invalid and/or unenforceable. In patent litigation in the U.S., defendant counterclaims alleging invalidity and/or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the U.S. or abroad, even outside the context of litigation. Such mechanisms include re-examination, post grant review, and equivalent proceedings in foreign jurisdictions, for example, opposition proceedings. Any such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art and that prior art that was cited during prosecution, but not relied on by the patent examiner, will not be revisited. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patents directed to our product candidates. A loss of patent rights could have a material adverse impact on our business.

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

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. In addition, the U.S. has recently enacted and is currently implementing wide-ranging patent reform legislation. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the recent case, *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. While we do not believe that any of the patents owned or licensed by us will be found invalid based on this decision, we cannot predict how future decisions by the courts, the U.S. Congress or the USPTO may impact the value of our patents.

We have limited foreign intellectual property rights and may not be able to protect our intellectual property rights throughout the world.

We have limited intellectual property rights outside the U.S. Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the U.S. can be less extensive than those in the U.S. In addition, the laws of some foreign countries do not protect intellectual property to the same extent as federal and state laws in the U.S. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the U.S., or from selling or importing 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 patents to develop their own products and further, may export otherwise infringing products to territories where we have patents, but enforcement is not as strong as that in the U.S. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property in foreign jurisdictions. The legal systems of certain countries, particularly China and certain other developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property, particularly those relating to biopharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. To date, we have not sought to enforce any issued patents in these foreign jurisdictions. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. The requirements for patentability may differ in certain countries, particularly developing countries. Furthermore, generic drug manufacturers or other competitors may challenge the scope, validity or enforceability of our or our licensors' patents, requiring us or our licensors to engage in complex, lengthy and costly litigation or other proceedings. Certain countries in Europe and developing countries, including China and India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

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

We have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of these third parties or our employees' former employers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees.

Risks Related to Ownership of our Common Stock

We are subject to securities litigation, which is expensive and could divert management attention.*

Our share price has been and may continue to be volatile. Companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We are a target of this type of litigation. For example, on February 6, 2018, a purported securities class action complaint captioned *Nipun Kakkar v. Bellicum Pharmaceuticals, Inc., Rick Fair and Alan Musso* was filed against us, and certain of our officers in the U.S. District Court for the Southern District of Texas, Houston Division. A second substantially similar class action was filed on March 14, 2018 by plaintiff Frances Rudy against the same defendants in the same court. The lawsuits purport to assert class action claims on behalf of purchasers of our securities during the period from May 8, 2017 through January 30, 2018. The complaints allege that the defendants violated the Exchange Act by making materially false and misleading statements concerning our clinical trials being conducted in the U.S. to assess rivo-cel as an adjunct T-cell therapy administered after allogeneic hematopoietic stem cell transplantation. The complaints purport to assert claims for violations of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 promulgated thereunder. The complaints seek, on behalf of the purported class, an unspecified amount of monetary damages, interest, fees and expenses of attorneys and experts, and other relief. On April 9, 2018, the District Court consolidated the two lawsuits under the *Kakkar* action. On March 26, 2019, the court appointed lead plaintiffs to represent the putative class.

On July 19, 2018, a purported shareholder derivative complaint captioned *Seung Paik v. Richard A. Fair, et al.* was filed against the Company's directors and certain of the Company's officers in the U.S. District Court for the Southern District of Texas, Houston Division. The lawsuit purports to seek damages on behalf of the Company against the individual defendants for breach of fiduciary duty, waste, unjust enrichment and violations of Section 14(a) of the Exchange Act. The complaint alleges that the defendants caused or allowed the Company to disseminate misstatements regarding the clinical trials for rivo-cel and to make false or misleading statements in the proxy materials for the Company's 2017 annual meeting of stockholders. On October 3, 2018, the District Court granted the Company's motion to stay the derivative cause of action until reinstated on motion of the parties.

Litigation of this type could result in substantial costs and diversion of management's attention and resources, which could adversely impact our business. Any adverse determination in litigation could also subject us to significant liabilities.

The price of our stock is volatile and you could lose all or part of your investment.

Prior to our December 2014 IPO, there was no public market for our common stock. The trading price of our common stock is likely to continue to be highly volatile and subject to wide fluctuations in response to various factors, some of which are beyond our control, including market conditions in general and a limited trading volume for our shares. In addition to the factors discussed in this "Risk Factors" section and elsewhere in our Annual Report, these factors include:

- the commencement, enrollment or results of the planned clinical trials of our product candidates or any future clinical trials we may conduct, or changes in the development status of our product candidates;
- any delay in our regulatory filings for our product candidates and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including without limitation the FDA's issuance of a "refusal to file" letter or a request for additional information;
- adverse results or delays in our ongoing or future clinical trials, including for rivo-cel;
- our decision to initiate a clinical trial, not to initiate a clinical trial or to terminate an existing clinical trial;
- adverse regulatory decisions, including failure to receive regulatory approval of our product candidates;
- changes in laws or regulations applicable to our products, including but not limited to clinical trial requirements for approvals;
- adverse developments concerning our CID technology platform and our small molecule drug rimiducid;
- adverse developments concerning our manufacturers;
- our inability to obtain adequate product supply for any approved product or inability to do so at acceptable prices;
- our inability to maintain successful collaborations or to establish new collaborations if needed;
- our failure to commercialize our product candidates;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to the use of our product candidates;
- introduction of new products or services offered by us or our competitors;

- announcements of significant acquisitions, strategic partnerships, joint ventures or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- the size and growth of our initial target markets;
- our ability to successfully treat additional types of diseases and cancers or at different stages;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry, or immunotherapy in particular, or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- overall performance of the equity markets;
- sales of our common stock by us or our stockholders in the future;
- trading volume of our common stock;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and The Nasdaq Global Market and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results or financial condition.

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

We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. In addition, the terms of our loan and security agreement with Oxford restrict our ability to declare or pay any cash dividend or make a cash distribution on any class of stock or other equity interest. Any return to stockholders will therefore be limited to the appreciation of their stock.

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

As of April 30, 2019, our executive officers, directors and 5% stockholders beneficially owned approximately 23.0% of our outstanding voting shares. Therefore, these stockholders may have the ability to significantly influence us through this ownership position. These stockholders may be able to significantly influence all matters requiring stockholder approval. For example, these stockholders may be able to significantly influence 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 that you may feel are in your best interest as one of our stockholders.

We are an emerging growth company and a smaller reporting company and the reduced reporting requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act enacted in April 2012. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our Annual Report and our periodic reports and proxy statements and exemptions from the requirements of holding nonbinding advisory votes on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an emerging growth company through 2019, although circumstances could cause us to lose that status earlier. We will remain an emerging growth company until the earlier of (a) December 31, 2019, (b) the last day of the fiscal year in which we have total annual gross revenue of at least $1.0 billion, (c) the last day of the fiscal year in which we are deemed to be a large accelerated filer, which requires the market value of our common stock that is held by non-affiliates to exceed $700.0 million as of the prior June 30th, or (d) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period.

We expect to continue to take advantage of some, but not all, of the available exemptions. Even after we no longer qualify as an emerging growth company, we may still qualify as a smaller reporting company, or SRC, which would allow us to take advantage of many of the same exemptions from disclosure requirements, including reduced disclosure obligations regarding executive compensation. We will remain an SRC until (a) the aggregate market value of our outstanding common stock held by non-affiliates as of the last business day our most recently completed second fiscal quarter exceeds $250 million or (b) (1) we have over $100 million in annual revenues *and* (2) the aggregate market value of our outstanding common stock held by non-affiliates as of the last business day our most recently completed second fiscal quarter exceeds $700 million. We cannot predict whether investors will find our common stock less attractive if we rely on certain or all of these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile and may decline.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies. As a result, changes in rules of U.S. generally accepted accounting principles, or US GAAP, or their interpretation, the adoption of new guidance or the application of existing guidance to changes in our business could significantly affect our financial position and results of operations.

Changes in accounting rules, assumptions and/or judgments could materially and adversely affect us.

Accounting rules and interpretations for certain aspects of our operations are highly complex and involve significant assumptions and judgment. These complexities could lead to a delay in the preparation and dissemination of our financial statements. Furthermore, changes in accounting rules and interpretations or in our accounting assumptions and/or judgments, such as asset impairments, could significantly impact our financial statements. In some cases, we could be required to apply a new or revised standard retroactively, resulting in restating prior period financial statements. Any of these circumstances could have a material adverse effect on our business, prospects, liquidity, financial condition and results of operations.

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

Certain holders of our outstanding shares of common stock, are entitled to rights with respect to the registration of their shares under the Securities Act of 1933, as amended, or Securities Act. Any sales of these shares by such stockholders could have a material adverse effect on the trading price of our common stock.

We register on Form S-8 all shares of common stock that are issuable under our 2014 Equity Incentive Plan, as amended, or the EIP. As a consequence, these shares can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our EIP and shelf registration statement, 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, including conducting clinical trials, commercialization efforts for rivo-cel, expanded research and development activities and costs associated with operating a public company. To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time, including pursuant to our shelf registration statement on Form S-3 that we filed with the SEC. In addition, on October 5, 2018, we entered into an Open Market Sale Agreement with Jefferies LLC, as sales agent, pursuant to which we may offer and sell, from time to time, shares of common stock with an aggregate offering price of up to $60.0 million. If we sell common stock, convertible securities or other equity securities, investors may be materially diluted by subsequent sales. Any such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to the existing holders of our common stock.

Anti-takeover provisions under our charter documents and Delaware law could delay or prevent a change of control which could limit the market price of our common stock and may prevent or frustrate attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could delay or prevent a change of control of our company or changes in our board of directors that our stockholders might consider favorable. Some of these provisions include:

- a board of directors divided into three classes serving staggered three-year terms, such that not all members of the board will be elected at one time;
- a prohibition on stockholder action through written consent, which requires that all stockholder actions be taken at a meeting of our stockholders;
- a requirement that special meetings of stockholders be called only by the chairman of the board of directors, the chief executive officer, or by a majority of the total number of authorized directors;
- advance notice requirements for stockholder proposals and nominations for election to our board of directors;
- a requirement that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of not less than two-thirds of all outstanding shares of our voting stock then entitled to vote in the election of directors;
- a requirement of approval of not less than two-thirds of all outstanding shares of our voting stock to amend any bylaws by stockholder action or to amend specific provisions of our certificate of incorporation; and
- the authority of the board of directors to issue convertible preferred stock on terms determined by the board of directors without stockholder approval and which convertible preferred stock may include rights superior to the rights of the holders of common stock.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporate Law, which may prohibit certain business combinations with stockholders owning 15% or more of our outstanding voting stock. These anti-takeover provisions and other provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors and could also delay or impede a merger, tender offer or proxy contest involving our company. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors of your choosing or cause us to take other corporate actions you desire. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our common stock to decline.

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 depends in part on the research and reports that securities or industry analysts publish about us or our business. In the event securities or industry analysts that cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of us or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

Unfavorable global economic conditions could adversely affect our business, financial condition or results of operations.

A severe or prolonged economic downturn could result in a variety of risks to our business, including reduced ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could also strain our relationships with our contractors and potential collaboration partners. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business.

In addition, Brexit has and may continue to cause disruptions to capital and currency markets worldwide. The full impact of the Brexit decision remains uncertain. A process of negotiation will determine the future terms of the United Kingdom's relationship with the European Union. During this period of negotiation, our results of operations and access to capital may be negatively affected by interest rate, exchange rate and other market and economic volatility, as well as regulatory and political uncertainty. Brexit may also have a detrimental effect on our customers, distributors and suppliers, which would, in turn, adversely affect our financial condition.

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

None.

Purchase of Equity Securities

We did not purchase any of our registered securities during the period covered by this Quarterly Report.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

The exhibits filed as part of this Quarterly Report are set forth on the Exhibit Index, which is incorporated herein by reference.

EXHIBIT INDEX

Exhibit number	Description of exhibit
3.1[(1)]	Amended and Restated Certificate of Incorporation of the Registrant.
3.2[(2)]	Amended and Restated Bylaws of the Registrant.
4.1	Reference is made to Exhibits 3.1 and 3.2.
4.2[(3)]	Form of Common Stock Certificate of the Registrant.

4.3(4)	Second Amended and Restated Investor Rights Agreement by and among the Registrant and certain of its stockholders, dated August 22, 2014.
4.4(5)	Registration Rights Agreement by and among the Registrant and Baker Brothers Life Sciences, LP, and two of its affiliated funds, dated January 15, 2016.
10.1*	Supply Agreement by and between Registrant and Miltenyi Biotech GmbH, dated March 27, 2019.
10.2+	Bellicum Pharmaceuticals, Inc. 2014 Equity Incentive Plan, as amended.
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certifications of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
+	Indicates management contract or compensatory plan.
*	Certain portions of this exhibit (indicated by "[***]") have been omitted as the Registrant as determined (i) the omitted information is not material and (ii) the omitted information would likely cause harm to the Registrant if publicly disclosed.
(1)	Incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on December 23, 2014 (File No. 001-36783).
(2)	Incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on December 23, 2014 (File No. 001-36783).
(3)	Incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-200328), as amended, originally filed with the SEC on November 18, 2014.
(4)	Incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-200328), as amended, originally filed with the SEC on November 18, 2014.
(5)	Incorporated by reference to Exhibit 4.4 to the Registrant's Annual Report on Form 10-K, filed with the SEC on March 14, 2016 (File No. 001-36783).

Signatures

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

Bellicum Pharmaceuticals, Inc.

Date: May 7, 2019

By: /s/ Richard A. Fair

Richard A. Fair

President and Chief Executive Officer

Date: May 7, 2019

By: /s/ Atabak Mokari

Atabak Mokari

Chief Financial Officer

Date: May 7, 2019

By: /s/ Rosemary Y. Williams

Rosemary Y. Williams

Principal Accounting Officer

SUPPLY AGREEMENT

(MB Global Contract Number MBGCR 19001)

This Supply Agreement (this "Agreement") is made and entered into, effective as of March 27, 2019 (the "Effective Date"), by and between Miltenyi Biotec GmbH, a German corporation having an address at Friedrich-Ebert-Str. 68, 51429 Bergisch Gladbach, Germany (hereinafter referred to as "Miltenyi"), and Bellicum Pharmaceuticals, Inc., a US corporation, having a registered office at 2130 West Holcombe Boulevard, Suite 800, Houston, TX 77030 (on behalf of itself and its Affiliates, individually and collectively referred to as "Bellicum"). Miltenyi and Bellicum are sometimes referred to herein individually as a "Party" and collectively as the "Parties."

RECITALS

WHEREAS, Miltenyi is a biotechnology company having technology and expertise relating to, inter alia, monoclonal antibodies, cell separation, and cell and gene therapy, and Miltenyi has developed and owns and controls various platform technologies for use in research and clinical applications and pharmaceutical development and manufacturing, including (i) systems, devices, reagents, disposables and related procedures and protocols for cell processing (including cell enrichment, purification, activation, modification and expansion) and cell analysis, (ii) bioassay reagents, assays, probes and related materials, and (iii) clinical cell or sample processing systems;

WHEREAS, Bellicum is a clinical stage biopharmaceutical company focused on discovering and developing cellular immunotherapies for hematological cancers and solid tumors, as well as orphan inherited blood diseases;

WHEREAS, Bellicum desires to use certain Miltenyi Products (as defined below) solely for the Permitted Use (as defined below) in connection with the development and manufacture of certain Bellicum Products (as defined below) by Bellicum and/or its Subcontractors or Licensees (as defined below) for use in preclinical and clinical development programs and, if approved, for commercial use; and

WHEREAS, Miltenyi desires to sell to Bellicum, and Bellicum desires to purchase from Miltenyi, the Miltenyi Products in accordance with the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants contained herein, the Parties agree as follows:

Article 1 DEFINITIONS AND INTERPRETATION

1.1 Definitions. For the purposes of this Agreement, unless the context requires otherwise, the following terms shall have the meanings set forth below:

"Additional Countries" shall have the meaning set forth in Section 2.3 of this Agreement.

"Affiliate" means, with respect to a Party, any corporation, association, or other entity which, directly or indirectly, controls the Party or is controlled by the Party or is under common control with such Party, where "control" means the possession, directly or indirectly, of the power to direct or cause the direction of the affairs or management of a corporation, association, or other entity through the ownership of fifty percent

or more of the voting securities or otherwise, including having the power to elect a majority of the board of directors or other governing body of such corporation, association, or other entity.

"Agreed Standards" means all standards, specifications, guidelines and regulations as to quality, safety and performance as are consistently applied by Miltenyi from time to time with respect to the manufacture and quality control of the relevant Miltenyi Product in accordance with Miltenyi's established quality system, standard operating procedures, and quality control procedures, and includes (i) any standard(s) as may be specifically determined to be applicable to the manufacture and quality control of the relevant Miltenyi Product (if any) (for example, with regard to the manufacturing of cell processing reagents or processing aids) by agreement between Miltenyi and any relevant Regulatory Authority/ies and as set forth in Miltenyi's relevant Master Files and/or the Quality Agreement and (ii) any standard(s) as may be expressly agreed between the Parties with respect to a relevant Miltenyi Product from time to time in writing in this Agreement or in an amendment to this Agreement.

"Agreement" means this Supply Agreement, including Exhibits A, B, C, D, E, F and G attached hereto and incorporated herein, as amended from time to time in accordance with Section 20.3 hereof.

"Applicable Laws" means all supranational, national, state and local laws, rules and regulations and guidelines governing the activities of a Party described in this Agreement within the Territory that are applicable to the manufacture, use, storage, import, export and handling of the Miltenyi Products, including any applicable rules, regulations, guidelines, and other requirements of any Regulatory Authority that may be in effect in the Territory from time to time.

"Bellicum Product" means one or more cell-based therapeutic product(s) that are manufactured using one or more Miltenyi Products and that are researched, developed and/or commercialized by or on behalf of Bellicum in the Field, as such products are identified in Modules set forth in Exhibit A to this Agreement, including related development candidate(s) and investigational cell-based therapeutics used under the sponsorship of Bellicum and as further specified in the applicable Module, as such Module may be amended from time to time by written notification of Bellicum to Miltenyi to add or remove product(s) in the Field.

"Bellicum Program" means a specific Bellicum program for preclinical, clinical development and/or commercialization relating to one or more Bellicum Products as such program is identified and described in a Module to this Agreement.

"Business Day" means any day on which banking institutions in both San Francisco, US, and Bergisch Gladbach, Germany, are open for business.

"Calendar Quarter" means each successive period of three consecutive calendar months commencing on January 1, April 1, July 1 and October 1.

"Calendar Year" means each successive period of twelve (12) months (each, a "Calendar Month") commencing on January 1 and ending on December 31, except that the first Calendar Year shall be that period from and including the Effective Date through December 31 of that same year, and the last Calendar Year shall be that period from and including the last January 1 of the Term through the earlier of the date of expiration or termination of this Agreement.

"Clinical Grade Product" means any Miltenyi Product designated as "Clinical Grade" in the attached Exhibit B, Column "Quality Status".

"Commercial Phase" means, on a Bellicum Product-by-Bellicum Product basis, the period of time during the Term of this Agreement following the approval by the FDA or other applicable Regulatory Authorities in the Designated Countries for a particular Bellicum Product, during which period of time Bellicum desires Miltenyi to supply Bellicum, its Subcontractors and/or Licensees with Miltenyi Product(s).

"[...***...]" shall mean, with respect to the efforts and resources required to fulfill any obligation hereunder, the use of [...***...] of companies in the pharmaceutical industry or the biotech industry.

"Communication" shall have the meaning set forth in Section 4.5.

"Confidential Information" shall have the meaning set forth in Section 14.

"Contract Year" means each successive period of twelve (12)-months during the Term ending on each anniversary of the Effective Date of this Agreement.

"Delivery" and "Deliver" shall have the meaning set forth in Section 6.1(a).

"Designated Countries" means those countries listed under section "Designated Countries" on the Bellicum Product specific Module.

"Discounts" shall have the meaning set forth in Section 8.4.

"*Ex Vivo* Cell Processing" means the selection, modification, alteration, activation and/or expansion of cells outside the human body.

"Facility" means (i) any production site owned or leased by Miltenyi or its Affiliate or by a Subcontractor of Miltenyi that is used for the manufacture of the Miltenyi Products, and (ii) any warehouse or distribution facility of Miltenyi or its Affiliate or a Subcontractor of Miltenyi that holds or ships Miltenyi Products, as the case may be.

"Field" means genetically modified, cell-based therapeutics for the treatment of human diseases, including but not limited to treatment of solid tumors and hematological cancers.

"Firm Zone" shall have the meaning provided in Section 5.1(a).

"Forecast" shall have the meaning provided in Article 5 of this Agreement.

"Forecast Territory" means those countries where a particular Bellicum Product is manufactured, and for such manufacturing where relevant Miltenyi Products are shipped, as listed under section "Forecast Territory" on the Bellicum Product specific Module.

"Global Contract Number" means the reference number shown on the first page of this Agreement.

"Initial Term" means the period set forth in Section 15.1.

"Intellectual Property Rights" means any and all past, present, and future rights which exist, or which may exist or be created in the future, under the laws of any jurisdiction in the world with respect to all: (i) rights associated with works of authorship, including exclusive exploitation rights, copyrights, moral rights, and mask works; (ii) trademarks and trade name rights and similar rights; (iii) trade secret rights; (iv) inventions, patents, patent applications, and industrial property rights; (v) other proprietary rights in intellectual property of every kind and nature; and (vi) rights in or relating to registrations, renewals, re-examinations, extensions, combinations, continuations, divisions, and reissues of, and applications for, any of the rights referred to in sub-clauses (i) through (v) above.

"Lead Time" means the minimum amount of time, as specified for each Miltenyi Product in Exhibit B hereto, between the date an applicable Purchase Order (as defined below) for Miltenyi Product is received by Miltenyi and the requested date of Delivery.

"Licensee" means any Bellicum associated Third Party that has rights by way of license, sublicense, collaboration or otherwise to research, have researched, develop, have developed, make, have made, use, have used, sell, offer for sale, import, have imported, export, have exported, or otherwise commercialize any Bellicum Product, as described in the Bellicum Product specific Module attached hereto as such Bellicum Product specific Module may be amended from time to time by written notification of Bellicum to Miltenyi to add or remove a Licensee.

"Master File" means any Type II Master File, Medical Device Master File, or regulatory support file or other equivalent document, filed by or on behalf of Miltenyi, as of the Effective Date or during the Term, with the FDA, EMA and/or any other applicable Regulatory Authority that accepts such Master Files for any Miltenyi Products and/or any component thereof and/or any products used in connection therewith, as applicable, and in each case any amendment thereto.

"Material Change" means any change to Agreed Standards, Product Specifications, critical raw materials, sources of critical raw materials and/or primary packaging of a Miltenyi Product that, to the extent reasonably foreseeable, could have potential adverse impact on the safety, quality, and/or performance or could otherwise materially alter the properties of a Miltenyi Product.

"Miltenyi Competitor" means the commercial entities and their respective Affiliates as set forth in Exhibit G attached hereto as such Exhibit G may be amended from time to time by written notification of Miltenyi to Bellicum of any proposal to add or remove a Miltenyi Competitior, which addition or removal shall be mutually agreed by the Parties after good faith discussion of such proposal.

"Miltenyi Products" means the products listed from time to time on Exhibit B attached hereto, and "Miltenyi Product" means any one of them. As used herein, Miltenyi Products include "Clinical Grade Products" and "Research Grade Products".

"Miltenyi Product Warranty" shall have the meaning provided in Section 11.1.

"Miltenyi Technology" means all Technology and Intellectual Property Rights currently in the possession of or controlled by Miltenyi, or conceived, developed or reduced to practice before or after the Effective Date by Miltenyi, relating to the research and development, manufacturing, registration for marketing, handling, use, or sale of a Miltenyi Product (e.g., instruments, columns, antibodies, antibody reagents, tubing sets, and buffers). The term "Miltenyi Technology" includes the CliniMACS® System, CliniMACS® Prodigy System, the MACS® Technology, and any other proprietary materials and methods useful for the selection, activation, purification, cultivation, or other kinds of processing, of cells or biological materials, or products utilizing any of the foregoing.

"Module" means a written description, mutually agreed upon by the Parties, of one or more Bellicum Products or one or more Bellicum Program(s) under which Miltenyi agrees to supply Miltenyi Products to Bellicum under this Agreement, as specifically applicable for such Bellicum Product(s) or such Bellicum Program(s). Each Module shall be agreed upon between the Parties on a Bellicum Product-by-Bellicum Product or Bellicum Program- by Bellicum-Program basis, as set forth in Section 1.4 and any amendment thereto.

"Permitted Use" shall have the meaning provided in Section 2.2 hereof.

"Product Specifications" means the particulars as to composition, quality, safety, integrity, purity and other characteristics for a Miltenyi Product as published by Miltenyi from time to time, or as set forth in the applicable Quality Agreement entered into by the Parties in accordance with Section 3.2.

"Purchase Order" shall have the meaning set forth in Section 5.7.

"Product Price" shall have the meaning set forth in Section 8.4.

"Quality Agreement" means one or more written agreements between the Parties, incorporating all relevant quality assurance and quality control obligations and aspects for the Parties with respect to the supply of Clinical Grade Products to Bellicum by Miltenyi under this Agreement.

"Regulatory Authority" means any federal, national, multinational, state, provincial or local regulatory agency, department, bureau or other governmental entity having the primary responsibility, jurisdiction, and authority to approve the manufacture, use, importation, packaging, labelling and/or marketing of pharmaceutical products or devices, including the United States Food and Drug Administration ("FDA") and the European Medicines Agency ("EMA"), and any equivalent or successor agency thereto.

"Regulatory Work" shall have the meaning set forth in Section 4.3.

"Rejected Products" shall have the meaning set forth in Section 7.2.

"Renewal Term" shall have the meaning set forth in Section 15.1.

"Required Change" shall have the meaning set forth in Section 3.2(c).

"Research Grade Product" means any Miltenyi Product designated as "Research Grade" in the attached Exhibit B, Column "Quality Status".

"Subcontractor" means a Third Party to which, as applicable: (i) Miltenyi subcontracts the manufacture and/or supply of Miltenyi Products on behalf of Miltenyi and under Miltenyi's authority and responsibility in accordance with Section 2.5 and as further set forth in the Quality Agreement, if applicable; or (ii) Bellicum or its Licensees subcontracts the manufacture and/or supply of Bellicum Products on behalf of Bellicum or its Licensees and under Bellicum's or its Licensees' authority and responsibility in accordance with this Agreement and as described in the Bellicum Product specific Module attached hereto, as such Bellicum Product specific Module may be amended from time to time by written notification of Bellicum to Miltenyi to add or remove Subcontractor.

"Technology" means all inventions, discoveries, improvements and proprietary methods and materials of a Party, whether or not patentable, including samples of, methods of production or use of, and structural and functional information pertaining to, chemical compounds, proteins, cells or other biological substances; other data; formulations; specifications; protocols; techniques; processes and procedures; and know-how; including any negative results; and other information of value to such Party that it maintains in secrecy, and in existence on or after the Effective Date.

"Term" means the Initial Term and any Renewal Term thereof.

"Territory" means worldwide.

"Third Party" means any corporation, association, or other entity that is not a Party or an Affiliate of a Party.

1.2 Certain Rules for Interpretation.

(a) The descriptive headings of Articles and Sections of the Agreement are inserted solely for convenience and ease of reference and shall not constitute any part of this Agreement, or have any effect on its interpretation or construction.

(b) All references in this Agreement to the singular shall include the plural where applicable, and vice versa, as the context may require.

(c) As used in this Agreement, (i) the word “including” is not intended to be exclusive and means “including without limitation”; (ii) neutral pronouns and any derivations thereof shall be deemed to include the feminine and masculine,; (iii) the words “hereof” and “hereunder” and other words of similar import refer to this Agreement as a whole, including all exhibits and appendices, as the same may be amended from time to time, and not to any subdivision of this Agreement; (iv) the word “days” means “calendar days,” unless otherwise stated; (v) the words “shall” and “will” are used interchangeably and have the same meaning; and (vi) the word “Section” refers to sections and subsections in this Agreement.

(d) Whenever any payment to be made or action to be taken under the Agreement is required to be made or taken on a day other than a Business Day, such payment shall be made or action shall be taken on the next Business Day following such day.

1.3 Scope of Agreement. As a master form of contract, this Agreement allows the Parties to agree upon and contract for the supply of Miltenyi Products pursuant to one or more Modules as described in Section 1.4, without having to re-negotiate the basic terms and conditions contained herein that are generally applicable to Miltenyi Product supply. Each such Module will set forth Module-related terms, conditions, rights and obligations regarding the Bellicum Product(s) or Bellicum Program(s) described in such Module, such as the binding or non-binding nature of Bellicum’s purchase commitment and Miltenyi’s supply commitment, pursuant to such Module, Forecast Territory and Designated Countries. Nothing in this Agreement shall be construed as creating any relationship between Miltenyi and Bellicum other than that of seller and buyer, or licensor and licensee, respectively. This Agreement is not intended to be, nor shall it be construed as, a joint venture, association, partnership, franchise, or other form of business organization or agency relationship. Neither Party shall have any right, power, or authority to assume, create, or incur any expense, liability, or obligation, express or implied, on behalf of the other Party, except as expressly provided herein.

1.4 Modules. The specific terms and conditions relating to Miltenyi’s supply of Miltenyi Products in support of a Bellicum Product or Bellicum Program under this Argeement shall be separately described in reasonable detail in a Module, where the form of such description will be substantially similar to the form attached hereto as Exhibit A. Each Module shall be effective upon signature by both Parties, and upon signature, such executed Module shall be attached to this Agreement. Modules shall be sequentially numbered, shall specifically refer to this Agreement, and shall incorporate the terms and conditions hereof by reference. There shall be no minimum or maximum number of Modules to be executed under this Agreement. Each Module shall be subject to all of the terms and conditions of this Agreement in addition to the specific details set forth in the Module. Each Module exists independently of other Modules. Notwithstanding the foregoing, to the extent any terms or conditions expressly set forth in a Module conflict with the terms and conditions of this Agreement, the terms and conditions of this Agreement shall control, unless the Module expressly states the intent of the Parties that a particular provision of such Module will supersede this Agreement with respect to a particular matter in that Module only.

ARTICLE 2 SUPPLY OF PRODUCT; ALLIANCE MANAGERS; JOINT STEERING COMMITTEE

2.1 Supply of Product. During the Term of this Agreement, and subject to the terms and conditions hereof, Miltenyi will non-exclusively supply and sell to Bellicum or its Licensees or Subcontractors, and Bellicum or its Licensees or Subcontractors will purchase from Miltenyi, Miltenyi Products listed on Exhibit B solely for the Permitted Use (as defined below). Each Purchase Order placed

under this Agreement shall be exclusively governed by the terms and conditions of this Agreement and the Quality Agreement, as amended from time to time, unless specifically otherwise agreed between the Parties in writing. Any terms and conditions of any Purchase Order or acknowledgement given or received which are additional to or inconsistent with this Agreement or the Quality Agreement shall have no effect and such terms and conditions are hereby excluded and rejected.

2.2 Permitted Use; Restrictions on Use.

(a) The supply of the Miltenyi Products hereunder conveys to Bellicum the limited, non-exclusive, non-transferable (except as expressly provided herein, including as set forth in Article 17) right to use, and to permit its Subcontractors and Licensees to use the Miltenyi Products solely for *Ex Vivo* Cell Processing in the manufacture of Bellicum Products for use in the Field in the Territory (including for research, pre-clinical, clinical, regulatory and commercial purposes), in accordance with applicable Regulatory Authority requirements and approvals (including (to the extent applicable) any relevant clinical trial protocol, IND, and/or IRB approval pertaining to such Bellicum Products), in each case consistent with the terms and conditions of this Agreement and in accordance with Applicable Laws (the "Permitted Use"). Bellicum's Permitted Use of the Miltenyi Products shall be limited to the Designated Countries, subject to Section 2.3.

(b) Bellicum shall not use, and shall cause its Subcontractors and Licensees not to use the Miltenyi Products and/or any component thereof for any purpose or in any manner whatsoever other than a Permitted Use expressly set forth in Section 2.2(a) above. Without limitation to the generality of the foregoing, any and all Miltenyi Products supplied hereunder (or any components thereof) shall not be used directly (i) for *in vivo* administration in humans; or (ii) as an ingredient of a Bellicum Product.

(c) Including for purposes of Section 8.2, Bellicum shall promptly notify Miltenyi in writing of any additional Bellicum Product from time to time manufactured by or on behalf of Bellicum (or any of its Licensees, if any) by using one or more Miltenyi Products, which Bellicum Product shall be added to Exhibit A by amendment; subsequently, the Parties shall agree upon the Bellicum Product specific Module within sixty (60) days.

(d) Except as expressly provided in this Agreement, no other right, express or implied, is conveyed by the sale or purchase of the Miltenyi Products (including the right to make or have made Miltenyi Products). Except as expressly provided in this Agreement, Bellicum specifically agrees not to, and agrees not to cause any Third Party to, sell, market, export, transfer, or re-export Miltenyi Products without Miltenyi's express prior written consent.

(e) Bellicum may offer and permit its Licensees and Subcontractors (if any) to use the Miltenyi Products supplied hereunder only if and so long as such use is in compliance with the terms and conditions of this Agreement and Applicable Laws. Bellicum shall instruct and oblige its Licensees and Subcontractors accordingly.

(f) Bellicum acknowledges that the Miltenyi Products should be used with the same caution applied to any potentially hazardous compound. Use of the Miltenyi Products by Bellicum, its Licensees or Subcontractors shall be supervised by a technically qualified individual.

(g) Without limitation to the generality of clauses (a) through (e) above, Bellicum further will not, and will cause its Licensees and Subcontractors not to, without express prior written consent from Miltenyi:

(1) Modify or alter, or cause any Third Party to modify or alter, any Miltenyi Product supplied hereunder other than in connection with its Permitted Use;

(2) Reverse engineer, disassemble or otherwise analyze, or cause any Third Party to reverse engineer, disassemble or otherwise analyze, any Miltenyi Product supplied hereunder, in whole or in part; provided, however, that the foregoing shall not limit the right or ability of Bellicum or its Licensees or Subcontractors to identify defects, troubleshoot problems, evaluate, test, use or conduct any study utilizing any Miltenyi Product(s) as reasonably necessary to achieve the purposes of this Agreement;

(3) Transfer any Miltenyi Product supplied hereunder to any Third Party, except to Bellicum Subcontractors or Licensees solely for the Permitted Use or for training or validation purposes in connection with Bellicum's development and commercialization of Bellicum Product;

(4) Resell Miltenyi Product supplied hereunder to any Third Party, including Bellicum Subcontractors and Licensees, without prior express written permission from Miltenyi; or

(5) Transfer, use, import or export any Miltenyi Product supplied to Bellicum hereunder in any country or territory other than the Designated Countries.

2.3 Additional Countries. Miltenyi acknowledges that Bellicum and/or its Licensees may from time to time desire to use Miltenyi Products in one or more countries that are currently not part of the Designated Countries (each, an "Additional Country"). The Parties agree, upon reasonable written request by Bellicum from time to time during the term of this Agreement, to evaluate the regulatory requirements for utilizing of Miltenyi Products for manufacture of Bellicum Products in the requested Additional Country(ies). Based on the assessment of potentially required additional work ("Additional Work"), including but not limited to regulatory work pursuant to Section 4.9 as may be required to prepare and file Master Files for Miltenyi Products in support of Bellicum Product filings in such Additional Country(ies), the Parties will negotiate in good faith with the goal of entering into an agreement on mutually acceptable terms with respect to Miltenyi's provision of such Additional Work. Bellicum shall inform Miltenyi in writing at least twelve (12) months in advance prior to any intended regulatory filing in an Additional Country.

2.4 Reserved Rights. Notwithstanding anything to the contrary in this Agreement, nothing herein is intended nor shall be construed as creating any exclusive arrangement between Miltenyi and Bellicum with respect to the supply, purchase and/or use of the Miltenyi Products. Miltenyi reserves the right, at its sole discretion and without any restriction or limitation whatsoever, to manufacture, have manufactured, use, have used, sell, have sold, offer for sale, export, import or otherwise commercialize or dispose of Miltenyi Products in any manner and for any purpose whatsoever.

2.5 Subcontracting by Miltenyi. Subject to the terms of the Quality Agreement, if applicable, Miltenyi may, at its sole discretion, upon reasonable prior written notice to Bellicum, elect to have the Miltenyi Products, or any one of them or any component thereof, manufactured by an Affiliate of Miltenyi, and further may subcontract the manufacturing of Miltenyi Product or any component thereof, to a Subcontractor; provided that (i) Miltenyi shall reasonably take into account Bellicum's written concerns regarding proposed Affiliate(s) or Subcontractor(s); and (ii) Miltenyi shall be solely and fully responsible for the performance of all delegated and subcontracted activities by its Affiliates and Subcontractor(s), including compliance with the terms of this Agreement and the Quality Agreement (as applicable), and in no event shall any such delegation or subcontract release Miltenyi from any of its obligations under this Agreement. Miltenyi's Subcontractors and Affiliates for the manufacture and/or supply of Miltenyi Products will be listed in the Quality Agreement

2.6 Compliance.

(a) Miltenyi shall have sole responsibility for ensuring, and shall ensure, that Miltenyi's and its Affiliates' and Subcontractors' activities and performance in connection with the manufacture of Miltenyi Products and the supply of such Miltenyi Products to Bellicum under this Agreement are at all times in compliance with Applicable Laws. Without limiting the generality of the foregoing, it shall

be the sole responsibility of Miltenyi to obtain and maintain, and Miltenyi shall obtain and maintain, all licenses, permits, authorizations, or registrations required by Applicable Laws in order for Miltenyi, its Affiliates, and/or Subcontractors (as the case may be) to manufacture and make Delivery of Miltenyi Products, except as otherwise provided in this Agreement, at Miltenyi's expense.

(b) Bellicum shall have sole responsibility for ensuring, and shall ensure, that the use of the Miltenyi Products for their respective Permitted Use by Bellicum, its Subcontractors and Licensees (as the case may be) is at all times in compliance with Applicable Laws. Without limiting the generality of the foregoing, it shall be the sole responsibility of Bellicum to obtain and maintain, and Bellicum shall obtain and maintain, all licenses, permits, authorizations, registrations, additional validations or additional testing required by Applicable Laws in order for Bellicum, its Subcontractors and Licensees to use the Miltenyi Products for the Permitted Use, at Bellicum's expense. Miltenyi shall comply with all reasonable requests for assistance by Bellicum in connection with Bellicum's efforts to obtain such licenses, permits, authorizations, registrations, additional validations or additional testing, to the extent applicable to the Miltenyi Products; provided that the Parties shall agree on the scope of such assistance to be provided by Miltenyi and upon the reasonable costs to be paid by Bellicum to Miltenyi for such assistance.

(c) In the event that Bellicum receives notice from a Regulatory Authority raising any issues concerning the safety or quality of any Miltenyi Product, Bellicum shall promptly notify Miltenyi of the same in writing. Upon receipt of such notification, and subject to Miltenyi's obligations set forth in the Quality Agreement, if applicable, in this regard, Miltenyi shall make [...***...] to cure such safety or quality issue(s) as they relate to the Miltenyi Products as promptly as possible, and unless such issues solely relate to Bellicum's Permitted Use of the relevant Miltenyi Product(s) in connection with the manufacture or use of a Bellicum Product, such efforts shall be at Miltenyi's sole expense.

(d) As of the Effective Date and to and through the expiration or termination of this Agreement, each Party represents, warrants and covenants to the other Party that: (1) such Party, and, to its actual knowledge, its owners, directors, officers, employees, and any agent, representative, Subcontractor or other Third Party acting for or on such its behalf, shall not, directly or indirectly, offer, pay, promise to pay, or authorize such offer, promise or payment, of anything of value, to any person for the purposes of obtaining or retaining business through any improper advantage in connection with this Agreement, or that would otherwise violate any Applicable Laws, rules and regulations concerning or relating to public or commercial bribery or corruption; and (2) its financial books, accounts, records and invoices related to this Agreement or related to any work conducted for or on behalf of the other Party are and will be complete and accurate in all material respects. Each Party may request in writing from time to time that the other Party complete a compliance certification regarding the foregoing in this Section 2.6.

2.7 Violations. Nothing herein contained shall oblige Miltenyi to continue supplying, or Bellicum to continue ordering or purchasing, any Miltenyi Product if such supply or purchase is reasonably believed by Miltenyi or Bellicum, as the case may be, based on objective grounds, to violate Applicable Laws or such Party's licenses, or if the Miltenyi Products supplied to Bellicum infringe, or are alleged to infringe, a Third Party's Intellectual Property Rights.

2.8 Transfer of Miltenyi Products. Bellicum shall have the right to transfer Miltenyi Product(s) purchased hereunder, or to request from Miltenyi, by notice in writing, that Miltenyi Deliver any Miltenyi Product(s) purchased hereunder to an Affiliate of Bellicum or a Subcontractor or Licensee of Bellicum Product designated by Bellicum, solely for the purpose of the Permitted Use, subject to the payment to Miltenyi of all additional expenses (if any) incurred by Miltenyi in connection with such provision and transfer of Miltenyi Product(s) to Bellicum's designee; and provided that in each case: (i) each Subcontractor or Licensee of Bellicum to whom Miltenyi Products are transferred shall be bound in writing by limitations and obligations that are consistent with the corresponding limitations and obligations imposed on Bellicum

hereunder and under the Quality Agreement, as applicable; and (ii) notwithstanding the transfer of any Miltenyi Product purchased hereunder, Bellicum will nevertheless continue to remain fully and primarily responsible and liable to Miltenyi for payment of the Product Price and for the use of the Miltenyi Product by any Subcontractor and Licensee to whom a Miltenyi Product is transferred.

2.9 Bellicum Licensees.

(a) If and to the extent that Bellicum grants rights with respect to a Bellicum Product under license or other agreement(s) with one or more Licensees of Bellicum, in no event shall Bellicum grant any rights under Miltenyi Intellectual Property Rights other than as expressly permitted hereunder and as are necessary to use Miltenyi Product for the purpose of the Permitted Use, or any rights that are otherwise inconsistent with the terms of this Agreement or the Quality Agreement.

(b) To the extent that the rights granted to Bellicum hereunder (including Bellicum's right to use each Miltenyi Product for its Permitted Use) are shared with one or more of its Subcontractors or Licensees in accordance with the terms hereof, Bellicum shall first impose limitations and obligations on such Subcontractors or Licensees, in writing, that are consistent with the corresponding limitations and obligations imposed on Bellicum hereunder, and Bellicum shall notify Miltenyi of the name and contact information for each such Subcontractor or Licensee that it shares such rights with, in writing, in accordance with Article 16 of this Agreement.

(c) Bellicum shall promptly notify Miltenyi in writing of any additional Licensee contemplating the use of Miltenyi Product(s) for the manufacture of a Bellicum Product from time to time, which Licensee shall be added to the Bellicum Product specific Module by amendment.

(d) At the reasonable written request of Bellicum during the Term, Miltenyi shall enter into a direct supply agreement for Miltenyi Products with any Licensee nominated by Bellicum, materially consistent with the terms and conditions of this Agreement and the Quality Agreement (as applicable), except as agreed otherwise in writing between Miltenyi and the respective Bellicum Licensee.

2.10 Liability for Non-Compliance. Notwithstanding anything to the contrary herein, Bellicum shall, in relation to Miltenyi, at all times and in all respects continue to remain fully and primarily responsible and liable to Miltenyi for the performance and the acts or omissions of its Affiliate, Subcontractor, and Licensee in connection with the subject matter of this Agreement, including the failure of an Affiliate, Subcontractor, or Licensee of Bellicum to comply with all of the limitations and obligations imposed on Bellicum hereunder. Notwithstanding anything to the contrary herein, Miltenyi shall, in relation to Bellicum, at all times and in all respects continue to remain fully and primarily responsible and liable to Bellicum for the performance and the acts or omissions of its Affiliates and Subcontractors in connection with the subject matter of this Agreement, including the failure of an Affiliate or Subcontractor of Miltenyi to comply with all of the limitations and obligations imposed on Miltenyi hereunder. For clarity, in no event shall any permitted delegation or subcontracting of any activities to be performed in connection with this Agreement release a Party from any of its limitations or obligations under this Agreement.

2.11 Governance.

(a) Alliance Managers. Each Party shall appoint an appropriately qualified individual to serve as an alliance manager under this Agreement (the "Alliance Manager"). Such persons shall endeavor to assure clear and responsive communication between the Parties and the effective exchange of information, and may serve as the primary point of contact for any matters arising under this Agreement. The Alliance Managers may attend meetings of the JSC, assist in resolving Disputes at the initial level of the Parties' good faith discussions, and may raise issues for discussion by the JSC.

(b) Joint Steering Committee. The Parties hereby establish a joint steering committee (the "JSC") that will monitor and provide strategic oversight of the activities under this Agreement, and facilitate communications between the Parties with respect to the supply of Miltenyi Products and Bellicum's development and commercialization of Bellicum Products. Each Party shall initially appoint up to three (3) representatives (or their designees) to the JSC, excluding the Alliance Manager of each Party who will attend JSC meetings in a non-voting capacity. Each such JSC representative of a Party will have sufficient seniority within such Party to make decisions arising within the scope of the JSC's responsibilities. The Parties' initial representatives to the JSC will be provided to each other Party within thirty (30) days after the Effective Date. The JSC may change its size from time to time by mutual consent of its members. Each Party may replace its JSC representatives at any time upon written notice to the other Party; provided, however, that neither Party may replace a representative on the JSC with an individual with lower seniority without the approval of the other Party, which approval shall not be unreasonably withheld. The JSC shall meet at least two times each Calendar Year, and at least one such JSC meeting shall be in person/ face-to-face with alternating locations (for in person/ face-to-face meetings only), unless otherwise agreed in writing by both Parties. Each Party may invite up to three (3) of its own employees, and the JSC may invite other non-members, to participate in the discussions and meetings of the JSC, provided that such participants shall have no voting authority at the JSC. The JSC shall have two (2) co-chairpersons, one from each Party. The role of the co-chairpersons shall be to convene and preside at meetings of the JSC. The Alliance Managers shall work with the co-chairpersons to prepare and circulate agendas and to ensure the preparation of minutes. The co-chairpersons shall have no additional powers or rights beyond those held by the other JSC representatives.

(c) Specific Responsibilities of the JSC. In addition to its overall responsibility for monitoring and providing strategic oversight with respect to the Parties' activities under this Agreement, the JSC shall in particular: (i) oversee the collaborative efforts of the Parties under this Agreement; (ii) review and discuss the research, development and commercialization of Miltenyi Products and Bellicum Products, including regulatory matters related thereto; (iii) attempt to resolve Disputes presented by the Alliance Managers; and (iv) perform such other functions as appropriate to further the purposes of this Agreement, in each case, as agreed in writing by the Parties. The JSC has no authority to modify this Agreement, the Quality Agreement or any Module.

ARTICLE 3 PRODUCT QUALITY; CHANGE CONTROL

3.1 Product Quality.

(a) Product Specifications. Miltenyi shall manufacture or have manufactured the Miltenyi Products to meet the agreed Product Specifications, as then in effect, as published by Miltenyi from time to time, or as set forth in the Quality Agreement, as applicable.

(b) Agreed Standards. All Miltenyi Products shall be manufactured and quality controlled in compliance with and pursuant to: (i) the Agreed Standards, (ii) the requirements of the Quality Agreement, if applicable, and (iii) Applicable Laws.

(c) Testing. Miltenyi shall have standard analytical testing performed on each batch of Miltenyi Product to be shipped to Bellicum, in accordance with Agreed Standards and the procedures described in the corresponding documentation, to verify that Miltenyi Product meets Product Specifications and that it was manufactured in accordance with Agreed Standards and Applicable Laws.

(d) Quality System. All Miltenyi Products supplied under this Agreement shall be manufactured and quality controlled under an appropriate quality system in accordance with Agreed Standards, as more fully described in the Quality Agreement (as applicable). Any subsequent change to Miltenyi's quality system that, as Bellicum can reasonably establish, would have or is likely to have a material effect on the safety, efficacy, identity and/or quality of a Miltenyi Product or its Permitted Use, requires the Parties to discuss and agree upon each such change in writing.

(e) Quality Agreement. Within [...***...] days from the Effective Date (or such longer period as agreed by the Parties in writing, but in any event prior to the first delivery of Clinical Grade Product to Bellicum), the Parties shall enter into an agreement on mutually acceptable, commercially reasonable terms that details the quality assurance obligations of each Party relating to Clinical Grade Products (the "Quality Agreement"). In the event of a conflict between the terms of the Quality Agreement and the terms of this Agreement, the provisions of this Agreement shall govern; provided, however, that the Quality Agreement shall govern in respect of quality issues.

3.2 Change Control.

(a) General. Subject to the terms and limitations set forth in this Section 3.2 and in the Quality Agreement, and unless otherwise agreed between the Parties in writing from time to time, Miltenyi reserves the right to periodically make changes to the Product Specifications, Agreed Standards and/or otherwise with respect to the properties, manufacture and/or testing of the Miltenyi Products (including changes with respect to: suppliers of raw materials; quality in raw materials; methods of manufacturing; packaging; equipment and/or premises; Subcontractors; product control techniques and methods of analysis; product release specifications; and/or presentation and content of relevant documentation, including certificates pursuant to Section 6.5) from time to time during the Term (each, a "Change").

(b) Change Notification. Change notifications shall be provided in accordance with the applicable notification procedures set forth in the Quality Agreement or in this Agreement. In the event that Miltenyi proposes a Material Change, unless such proposed Change is a Required Change pursuant to Section 3.2(c) below and there are compelling reasons for earlier implementation of such Required Change, Miltenyi shall give Bellicum at least [...***...] months' advance written notice prior to implementation of the proposed Material Change (a "Change Notification"). Miltenyi shall be responsible for drafting relevant documentation and shall provide to Bellicum all information reasonably necessary for Bellicum to make appropriate filings with the applicable Regulatory Authority regarding any Change under this subsection, if applicable.

(c) Changes Required for Compliance. If during the Term a Change is required to comply with changes in Agreed Standards made by Regulatory Authorities, Applicable Laws and/or other requirements of a Regulatory Authority, or if Miltenyi determines, in its reasonable judgment, that a Change is required to address safety and/or quality issues in regard to the Miltenyi Product generally (in each case, a "Required Change"), Miltenyi shall use [...***...] to implement such Required Change at its cost. However, in the event that a Required Change is specifically related to the use of Miltenyi Product for a Permitted Use in relation to a Bellicum Product (a "Bellicum-Specific Required Change"), then Miltenyi shall use [...***...] to implement such Bellicum-Specific Required Change only if and to the extent Bellicum agrees to reimburse Miltenyi for all documented costs and expenses reasonably incurred by Miltenyi as a result of any such Bellicum-Specific Required Change. Prior to implementing a Required Change in accordance with this Section 3.2(c), Miltenyi shall promptly advise Bellicum as to any scheduling and/or Product Price adjustments which may result from any such Required Change, if any. Miltenyi and Bellicum shall negotiate in good faith in an attempt to reach agreement on (i) the new Product Price, if any, for any Miltenyi Product which embodies such Required Change, giving due consideration to the effect of such change on Miltenyi's manufacturing costs for the changed Miltenyi Product as well as any other relevant factors, (ii) the responsibility for any costs and expenses associated with Miltenyi's activities required to implement such Change, and (iii) any other amendments to this Agreement which may be necessitated by such Change (e.g., an adjustment to the lead time for firm orders). For clarity, Miltenyi shall have no obligation to implement a Bellicum-Specific Required Change unless and until the Parties have reached agreement on all items as described in the preceding sentence.

(d) Changes Requested by Bellicum. If during the Term Bellicum desires Miltenyi to make any Change not necessary to comply with changes in Agreed Standards made by Regulatory

Authorities, Applicable Laws and/or other requirements of Regulatory Authorities (in each case, a "Bellicum-Requested Change"), Bellicum shall notify Miltenyi thereof in writing. Implementation of any such proposed Bellicum-Requested Change shall be subject to Miltenyi's consent. Miltenyi may withhold its consent to an Bellicum-Requested Change if Miltenyi reasonably determines that such change (i) does not comply with Agreed Standards, Applicable Laws or the requirements of Miltenyi's applicable Regulatory Authority, or (ii) could have potential adverse impact on Miltenyi's manufacturing activities or the sale of the respective Miltenyi Product to other customers. In addition, a Bellicum-Requested Change shall only be implemented following a technical and cost review which shall be conducted as promptly as is reasonably possible and in good faith by Miltenyi, at Bellicum's cost, and shall be subject to Miltenyi and Bellicum reaching agreement as to the one-time costs and revisions to the Product Price necessitated by any such Bellicum-Requested Change. If Bellicum agrees to reimburse Miltenyi for all documented costs and expenses reasonably incurred by Miltenyi as a result of the proposed Bellicum-Requested Change and accepts a proposed Product Price adjustment that reflects a change in Miltenyi manufacturing costs resulting from such Bellicum-Requested Change, Miltenyi shall use [...***...] to implement the proposed Bellicum-Requested Change. For clarity, an agreed adjustment to the Product Price shall become effective only with respect to orders for Miltenyi Products that are manufactured in accordance with the Bellicum-Requested Change.

(e) Changes Requested by Miltenyi. If during the Term Miltenyi wishes to make any Material Change not necessary to comply with changes in Agreed Standards made by Regulatory Authorities, Applicable Laws or other requirements of Regulatory Authorities (in each case, a "Miltenyi-Requested Change"), Miltenyi shall notify Bellicum in accordance with the Change Notification procedures set forth in Section 3.2(b) and the Quality Agreement before implementation of such Miltenyi-Requested Change (including at least 6 months advance written notice prior to implementation), and shall keep Bellicum advised of its efforts to effectuate such change. Miltenyi shall use its best efforts to provide to Bellicum with a commercially reaosnable number of samples of the "Changed Miltenyi Product" (meaning such Miltenyi Product that is produced under conditions of the Miltenyi-Requested Change) for evaluation by Bellicum as soon as such Changed Miltenyi Product becomes available during the post-nofication period. Miltenyi shall be responsible for drafting relevant documentation and shall provide to Bellicum any information reasonably necessary for Bellicum to make appropriate filings with the applicable Regulatory Authority for Bellicum to obtain any required amendment or other modification of the Bellicum Product regulatory approvals regarding changes under this subsection, if applicable. Miltenyi shall implement such Miltenyi-Requested Change at its own cost and expense. If Bellicum does not agree that such Changed Miltenyi Product is acceptable from Bellicum's perspective, then any limitations on or obligations of Bellicum under Article 5 pertaining to forecast variances and Firm Zone ordering in relation to Miltenyi Products affected by such Miltenyi-Requested Change shall not apply, and therefore Bellicum has no obligation to purchase any such Changed Miltenyi Products.

(f) Cooperation. In connection with any Change pursuant to this Section 3.2, the Parties shall cooperate, share information, and otherwise act in good faith to prepare the appropriate documentation as may be necessary to secure and maintain appropriate regulatory approvals or manufacturing permits for Miltenyi Product and Bellicum Product, respectively.

(g) Continued Supply. Except in the event of a Required Change, or other circumstances requiring the prompt implementation of a proposed Material Change (as such circumstances and prompt implementation are notified to Bellicum in writing and if requested by Bellicum, discussed with Bellicum in good faith), Miltenyi shall continue to supply Miltenyi Product without the proposed Material Change for as long a period as is reasonably required for Bellicum, using [...***...], to make all appropriate filings and obtain any required amendment or modification of existing regulatory approvals for Bellicum Product (unless otherwise agreed, such period not to exceed six (6) months from the date of implementation of the Material Change as provided in Miltenyi's Change Notification pursuant to Section 3.2(b)), subject to the Parties reaching agreement, as to the one-time costs and revisions to the Product

Price necessitated by any such continued supply of unchanged Miltenyi Product during such period. Until such agreement is reached, any limitations on or obligations of Bellicum under Article 5 pertaining to forecast variances and Firm Zone ordering in relation to Miltenyi Products described in this subsection (g) shall not apply, and therefore Bellicum has no obligation to purchase any such Miltenyi Products produced after implementation of such Material Change. If the continued supply of unchanged Miltenyi Product under this subsection (g) is reasonably estimated by the Parties to exceed a period of six (6) months from the implementation date of the Material Change notified in a Change Notification pursuant to Section 3.2(b), then the Parties shall promptly meet to discuss in good faith how to remedy the situation.

(h) Notwithstanding the provisions of subsections (e) and (g), in the event that Bellicum reasonably determines to reject a proposed Material Change (including a Miltenyi-Requested Change), Miltenyi will continue to supply the applicable Miltenyi Product without such change after expiry of the said 6-month period and during the Term of this Agreement, or until Bellicum has secured an alternate source of supply from a Third Party manufacturer; provided, however, that the Parties will discuss in good faith, reflecting the change in circumstances contemplated by this Section 3.2(h), and agree in writing upon commercially reasonable terms to be set forth in an amendment to this Agreement to reflect any demonstrable increased cost and effort (if any) resulting from the manufacture of unchanged Miltenyi Product solely for Bellicum, including (as an example) any applicable adjustments to Forecasts, Lead Times, production cycles, batch sizes, Delivery Dates, Product Prices, or other relevant issues. If the Parties cannot reach agreement regarding such amendment, any obligations of Bellicum in relation to a Forecast for the affected Miltentyi Product in months 7-12 of the applicable Monthly Forecast, and any limitations regarding forecast variances, as each of these are set forth in Article 5, will not apply to a Miltenyi Product produced after implementation of such Material Change (i.e., one that replaces such affected (unchanged) Miltenyi Product), and Miltenyi shall be relieved from any obligations to supply such affected (unchanged) Miltenyi Product under this Agreement after the period described in the first sentence of this subsection (h) ends. For clarity, in no event shall Miltenyi be required to manufacture, supply or sell an existing Miltenyi Product to which a Required Change must be applied.

(i) Research Grade Products. The notification requirements of the second sentence of Section 3.2(b) of this Agreement with respect to Material Changes and the obligations of Section 3.2(g) with respect to Continued Supply shall not apply to Research Grade Products.

(j) Costs. Bellicum shall have responsibility for any Regulatory Authority filing fees and other costs and expenses incurred by Bellicum in connection with any filing or required amendment or other modification of regulatory approvals or consents for Bellicum Product resulting from any Change pursuant this Section 3.2, if applicable.

ARTICLE 4 REGULATORY

4.1 Regulatory Responsibility.

(a) Bellicum Product(s). Subject to responsibilities pertaining to Miltenyi Products that are solely reserved by Miltenyi under this Agreement, and subject to the provisions in this Article 4 (including Section 4.7), Bellicum will be solely responsible for all regulatory activities with respect to any Bellicum Product, including the manufacture and quality control thereof.

(b) Miltenyi Product(s). Subject to responsibilities pertaining to Bellicum Product(s) that are solely reserved by Bellicum under this Agreement, and subject to the provisions in this Article 4 (including Section 4.7), Miltenyi will be solely responsible for all regulatory activities with respect to any Miltenyi Product, including the manufacture and quality control thereof.

(c) Disclaimer. Bellicum hereby acknowledges and agrees that, except as specifically set out with respect to any Miltenyi Product in the Product Specifications or in the Quality Agreement, as

applicable, the Miltenyi Products have no approvals by Regulatory Authorities in the Territory for use in diagnostic or therapeutic procedures or other clinical applications, or for any other use requiring compliance with any law or regulation regulating clinical, diagnostic or therapeutic products or any similar product (hereinafter collectively referred to as "Regulatory Laws"). Bellicum further acknowledges and agrees that Miltenyi Products have not yet been fully tested or validated for safety or effectiveness in connection with Bellicum's Permitted Use. Save as set out in the Product Specifications or the applicable Quality Agreement, it shall be the sole responsibility of Bellicum to test and validate the Miltenyi Products for Bellicum's contemplated Permitted Use hereunder and to take all other actions necessary to establish compliance of Bellicum's Permitted Use thereof with all regulatory requirements, and to ensure that any Bellicum Product resulting from such Permitted Use meets all applicable safety, quality, or other regulatory requirements (including Regulatory Laws), in each case prior to the first use of such Miltenyi Product.

(d) The Miltenyi Products supplied hereunder may not be used for any purpose that would require Regulatory Authority approvals or consents unless such proper Regulatory Authority approvals or consents have been obtained. Bellicum agrees that if it elects to use, or causes any Bellicum Subcontractor or Licensee to use, any Miltenyi Products for a purpose that would subject Miltenyi or such Miltenyi Products to the jurisdiction of any Regulatory Laws, Bellicum will be solely responsible for obtaining any required Regulatory Authority approvals or consents, and for otherwise ensuring that Bellicum's (or its Subcontractors' or Licensees') use of such Miltenyi Products for such purpose complies with such Regulatory Laws. Bellicum shall defend and indemnify Miltenyi and its Affiliates against any liability, damage, loss or expense resulting from or arising out of Bellicum's failure to obtain all necessary Regulatory Authority approvals or consents or to comply with any Regulatory Laws in relation to Bellicum's use of such Miltenyi Products for such purpose.

4.2 Regulatory Authority Requirements. Miltenyi states that (i) Miltenyi is obliged by relevant Regulatory Authorities to keep a record of all of its customer's clinical trials that use Miltenyi Products (name and title of clinical trials, the official registration numbers, name and addresses of the involved principal investigators and clinical trial centers as well as the corresponding formal document granting approval of an IND (for example only, IND/CTA acknowledgement letter of the relevant Regulatory Authority(ies) involving the use of "IDE/CRR"-labelled Miltenyi Products)) (regardless of whether such clinical trials are sponsored by Miltenyi or by any Third Party); and (ii) Miltenyi is not permitted to provide "IDE/CRR"-labeled Miltenyi Products to customers in the United States for use in clinical trials if the IND or IDE is not approved by the respective regulatory authority or rejected. . Miltenyi shall act and shall have no liability to Bellicum for acting in accordance with the foregoing requirements. As used herein, "CTA" means a clinical trial application; "IDE" means an investigational device exemption; and "IDE/CRR" references a certain subset of Miltenyi Products labeled with the "IDE/CRR" designation.

4.3 Regulatory Work. Miltenyi has established, or may from time to time establish, Master Files for one or more Miltenyi Products with one or more Regulatory Authorities in the Territory. Miltenyi shall maintain each such Master File in accordance with Applicable Laws ("Regulatory Work"). To the extent Bellicum requests that Miltenyi generate any additional Master File and/or add additional information to any existing Master File, the provisions of Section 4.4 "Extension of Scope, Supplemental Services" below shall apply.

4.4 Extension of Scope, Supplemental Services. With respect to any Bellicum Product, Bellicum may request that Miltenyi provide additional regulatory assistance beyond the scope of the Regulatory Work, and/or may request that Miltenyi perform additional services (i.e. generation of additional supportive data for inclusion in a Master File) that alter, amend, or add to the Regulatory Work. Bellicum shall submit each such request to Miltenyi with reasonable detail in writing. Any request that constitutes a material modification or increase in scope of the Regulatory Work or an agreement for the provision of additional services shall require a written amendment to this Agreement via the Bellicum Product- or Bellicum Program-specific Module signed by authorized representatives of both Parties. Such amendment

shall specify in detail any modification or scope change of the Regulatory Work performed by Miltenyi, the appropriate compensation (if any) or basis for such compensation to be paid to Miltenyi by Bellicum for the performance of such additional Regulatory Work assistance or services, and the appropriate time schedule for completion of such additional Regulatory Work assistance or services. Upon executing such written amendment, the additional Regulatory Work assistance or services shall be deemed included within Regulatory Work and subject to the standards of performance described in this Agreement.

4.5 Master Files; Right to Cross Reference. Upon Bellicum's written request, subject to Section 4.9, Miltenyi shall submit a cross reference letter to the appropriate Regulatory Authority(ies) in any Designated Country in which Miltenyi maintains a Master File(s) for the relevant Miltenyi Product(s), authorizing such Regulatory Authority(ies) to access and refer to such Master File(s) for the relevant Miltenyi Product(s) to the extent such information is reasonably required for regulatory purposes to obtain the applicable regulatory approvals for the Permitted Use of the Miltenyi Product(s) and/or the Bellicum Product(s); provided, however, that Bellicum shall first provide to Miltenyi all necessary information about such Bellicum Product that is reasonably included in such cross reference letter.

4.6 Rights to Master Files. Miltenyi shall solely own and retain all rights, title and interest in and to the Master File(s) (and any pertaining regulatory documentation). Bellicum shall have no right to access the Master File(s), or, except as expressly set forth in Section 4.5 supra, to require the disclosure by Miltenyi of any information contained in any Master File, or to cross-reference or otherwise use the Master File(s) for any purpose other than as expressly provided herein.

4.7 Communication to/from Regulatory Authorities.

(a) Communication from Regulatory Authorities. Each Party will promptly notify the other Party in writing of any material communication from any Regulatory Authority that is related specifically to (i) the safety and/or functionality of any Miltenyi Product(s) and/or the use thereof for the manufacture of Bellicum Product or (ii) the safety and/or functionality of any Bellicum Product(s) as the same relate or could relate to a Miltenyi Product and/or the use of Miltenyi Product(s) in the manufacture of Bellicum Product(s), and that would, in each case of (i) and (ii), reasonably be expected to have a material adverse effect on either Party's products that are the subject matter of this Agreement, or ability of a Party to comply with its obligations under this Agreement (collectively, "Communication(s)"). Each Party shall, as soon as practicable after any contact with or receipt of any Communication, forward a copy or description of the same (to the extent it so relates) to the other Party. Each Party reserves the right to redact its Confidential Information and confidential Third Party information from such Communications. Each Party shall obligate its Affiliates and Subcontractors accordingly.

(b) Communication to Regulatory Authorities. In the event that a response to a Regulatory Authority is required in connection with any Communication, Bellicum will have sole responsibility for the form and content of any response to a Communication from a Regulatory Authority in connection with any regulatory submission regarding a Bellicum Product, or any non-Miltenyi Product component thereof (Miltenyi will provide its proposed response regarding any Miltenyi Product component thereof), and any non-product-specific information and/or non-procedure-specific information related to Bellicum, and Miltenyi will have sole responsibility for the form and content of any response to a Communication from a Regulatory Authority regarding a Miltenyi Product regulatory submission or any component thereof, the Master Files, and any non-product specific information related to Miltenyi. If Miltenyi's response is requested and needed in connection with any Bellicum Product regulatory submission, and a delayed response is likely to delay development or commercialization of such Bellicum Product, then Miltenyi will promptly use its diligent efforts to provide such response as soon as practicable. At the responding Party's reasonable request and expense, the other Party will collaborate in good faith with the responding Party in preparing such responses and, subject to Sections 4.5 and 4.6, will provide the responding

Party with information that the responding Party reasonably believes is required to develop a requested response for questions in relation to such Communication.

(c) Required Communications. If Bellicum is required to communicate with any Regulatory Authority specifically regarding any Miltenyi Product, then Bellicum shall so advise Miltenyi as soon as practicable and, unless prohibited by Applicable Law, or to the extent that such a disclosure would result in the violation of any contractual obligations to a Third Party, provide Miltenyi in advance with a copy of any proposed written Communication with such Regulatory Authority to the extent that such Communication pertains to Miltenyi Products; provided that Bellicum reserves the right to redact its Confidential Information and confidential Third Party information from such copy. Bellicum shall use reasonable efforts to comply with all reasonable direction of Miltenyi pertaining to the foregoing. To the extent permitted by the Regulatory Authority, Miltenyi shall have the right to participate in any planned oral Communications or meetings between Bellicum and any Regulatory Authority specifically relating to Miltenyi Products or Miltenyi Technology. For purposes of clarification, the obligations imposed on Bellicum pursuant to this Section 4.7(c) shall not apply with respect to Communications with Regulatory Authorities that are focused primarily on a non-Miltenyi Product portions or on a Bellicum Product.

4.8 Assistance. Miltenyi shall, if requested by Bellicum, consult with and provide reasonable assistance to Bellicum with regard to regulatory matters concerning the Miltenyi Products, as appropriate, provided that for any assistance regarding regulatory matters that is beyond the scope of standard use of the Miltenyi Products as made available in Miltenyi's catalogue, Bellicum shall pay for Miltenyi's time for such consulting and assistance at Miltenyi's then-standard rates, which scope and limits shall be discussed between the Parties and mutually agreed in writing prior to the performance of the assistance by Miltenyi (subject to the Parties' representations, warranties and liabilities under this Agreement). Absent Miltenyi's gross negligence or willful misconduct, Bellicum shall bear all responsibility for Bellicum's or Bellicum Subcontractors' use of information provided by Miltenyi (including use in regulatory filings and any Third Party liability) pursuant to this Section 4.8.

4.9 Additional Filings. Bellicum acknowledges that, as of the Effective Date, Master Files in relation to Miltenyi's supply obligations have not been filed in all jurisdictions worldwide. If Bellicum desires to pursue clinical evaluations related to the approvability or approval of any Bellicum Product or decides to pursue commercialization of any Bellicum Product in any jurisdiction where Miltenyi does not then have an active Master File, and Bellicum would not legally be able to conduct such evaluation or commercialization without Miltenyi filing a Master File in such jurisdiction or making necessary information available to the Regulatory Authority, then Bellicum shall so notify Miltenyi, and the Parties shall discuss in good faith the terms and conditions under which Miltenyi would be willing to file such Master File or provide necessary information to the Regulatory Authority including additional compensation to Miltenyi (if any), but Miltenyi shall not be obligated to file such Master File or provide such information, unless the Parties mutually agree in writing on such commercially reasonable terms and conditions. To the extent requested by Bellicum in writing from time to time to amend the Bellicum Product specific Module to include Additional Countries, Miltenyi shall work in good faith with Bellicum to include such Additional Countries in accordance with the provisions of Section 2.3 *supra*.

4.10 Disclaimer. Except as provided in this Article 4 or otherwise in the Agreement, Miltenyi provides no warranty that any Master File or other regulatory dossier or submission by Miltenyi or Bellicum will be approved by any Regulatory Authority. Miltenyi shall in no way be held responsible for any refusal by any Regulatory Authority or ethics committee to grant permission to conduct a clinical trial(s) and/or for any refusal by any Regulatory Authority to grant approval under an Investigational New Drug Application (IND) or under a Biological License Application (BLA) or for compassionate use for a Bellicum Product.

ARTICLE 5 FORECASTS AND ORDERS

5.1 Forecasts. In order to assist Miltenyi with its capacity, procurement and production planning, and as a general framework for forecasting Bellicum's orders of Miltenyi Products (where more specific parameters may be set forth in a given Module), Bellicum agrees to provide Miltenyi with rolling forecasts of Bellicum's (and its Subcontractors' and Licensees') anticipated quantity requirements for Miltenyi Products in the Forecast Territory during the Term of this Agreement, in accordance with the provisions of this Section 5.1 (each, a "Forecast"). There is no binding forecasting obligation for Research Grade Products, except (if applicable) as otherwise explicitly agreed in a Module. Any modified forecasting terms and conditions for a particular Bellicum Product or Bellicum Program that supplement this Article 5 will be set forth in the Module applicable to that Bellicum Product or Bellicum Program. All of the Forecasts provided under this Agreement will break down the demand of Miltenyi Products on a product-by-product (expressed in number of units) and manufacturing country-by-manufacturing country basis (i.e., Forecast Territory only) and substantially follow the mutually agreed Miltenyi forecast sheet, as attached hereto in Exhibit C 1-3. All Forecasts provided by Bellicum will be good faith estimates of Bellicum's anticipated quantity requirements for Miltenyi Products during the relevant period. Bellicum agrees to use [...***...] in preparing all Forecasts provided hereunder to minimize variances between Forecasts. Each Forecast shall be duly signed by an authorized representative of Bellicum (or Bellicum's designee on behalf of Bellicum) and submitted in writing to Miltenyi, by mail, email or facsimile, and shall supersede prior Forecasts to the extent the Forecast overlaps with prior Forecasts.

(a) Rolling Monthly Forecast; Firm Zone. Within [...***...] Business Days of the Effective Date, and thereafter by the [...***...] day of each Calendar Month during the Term, Bellicum shall submit a monthly rolling Forecast of Bellicum's anticipated quantity requirements for Miltenyi Products within the Forecast Territory (on a manufacturing country-by-manufacturing country basis) for each of the next twelve (12) consecutive Calendar Months (e.g., year 1: months 1-12), commencing with the Calendar Month in which such Forecast is submitted (each, a "Monthly Forecast"). (For clarity, the initial Monthly Forecast will cover Calendar Year 1, i.e., Calendar Months 1-12; the following Monthly Forecast will cover the twelve Calendar Months period following the Calendar Month 1 of the previous Monthly Forecast, i.e., Calendar Months 2-13.) The Monthly Forecast shall show quantities forecasted on a monthly basis, and for the first (1st) three (3) months shall state the desired dates of Delivery for the forecasted quantities. With respect to any Monthly Forecast for Miltenyi Products submitted during the Term, [...***...] percent ([...***...]%) of the quantities forecasted for the first (1st) three (3) month period of each Monthly Forecast (each such 3-month period will be referred to as the "Firm Zone") shall be binding, and the corresponding portion of each subsequent Monthly Forecast shall be consistent with such period. For clarity, all forecasted quantities of Miltenyi Products during the Firm Zone shall constitute a binding commitment by Bellicum to submit corresponding Purchase Orders for Miltenyi Products. The Parties agree that, except with respect to the Firm Zone and any additional conditions set forth in a given Module, a Monthly Forecast provided by Bellicum will not be binding upon both Parties.

(b) Rolling Quarterly Forecast. Within [...***...] Business Days of the Effective Date, and thereafter by the [...***...] day of each last month of a Calendar Quarter during the Term, Bellicum shall submit a non-binding quarterly rolling Forecast of Bellicum's anticipated quantity requirements for Miltenyi Products for each of the four (4) Calendar Quarters immediately following the last month of such Calendar Quarter (each, a "Quarterly Forecast"). Each Quarterly Forecast shall show anticipated quantity requirements on a quarterly basis. (For clarity, the initial Quarterly Forecast will cover Calendar Year 2, i.e. Calendar Quarters 1, 2, 3 and 4 (covering Calendar Months 13-15, 16-18, 19-21 and 22-24); the following Quarterly Forecast will cover the four Calendar Quarter period following the Calendar Quarter 1 of the previous Quarterly Forecast, i.e. Calendar Quarters 2-5.) A Quarterly Forecast provided by Bellicum will not be binding upon both Parties.

(c) Long-Term Forecast. In addition, Bellicum (or Bellicum's designee on behalf of Bellicum) shall within [...***...] days of the Effective Date, and thereafter by [...***...] of each Calendar Year during the Term, submit a non-binding annual rolling Forecast of Bellicum's anticipated quantity requirements for Miltenyi Products for each of the next three (3) consecutive Calendar Years, commencing with the Calendar Year in which such Forecast is submitted (each, a "Long-Term Forecast") for the purposes of assisting Miltenyi with its capacity and production planning for Miltenyi Products during such period. Each Long-Term Forecast shall show anticipated quantity requirements on an annual basis. (For clarity, the initial Long-Term Forecast will cover the Calendar Years 3 to 5; the following Long-Term Forecast will cover the Calendar Years period following the previous Calendar Year 3 of the previous Long-Term Forecast, i.e. Calendar Years 4-5.) A Long Term Forecast provided by Bellicum will not be binding upon both Parties and shall serve to assess future capacity planning at Miltenyi.

(d) Forecasts Due Periodically. In the event that Miltenyi has failed to receive an updated Forecast for any relevant forecast period within the times or by the dates provided in clauses (a) through (c) above, Miltenyi shall promptly notify Bellicum of such failure in writing and, if Bellicum fails to respond with an updated Forecast by the [...***...] day of a Calendar Month of the relevant forecast period, the most recent Forecast shall be regarded as current.

(e) Acceptable Forecast Variance. Outside the Firm Zone, Bellicum may increase or decrease the amount of Miltenyi Product forecast for each Calendar Month of each Monthly Forecast by up to [...***...] percent ([...***...]%) for Calendar Months 4 through 6, and by [...***...] percent ([...***...]%) for Calendar Months 7 through 12, compared to the amount of Miltenyi Product that was forecast for the comparable Calendar Month in the prior Monthly Forecast provided in accordance with this Agreement, on a product-by-product and country-by-country basis, (e.g., the forecast for the fourth Calendar Month in a Monthly Forecast may not increase or decrease by more than [...***...]% of the amount of any particular Miltenyi Product in any particular country forecast for the fifth Calendar Month of the prior Monthly Forecast). For clarity, variances with respect to forecasts submitted for any Calendar Month within the Firm Zone shall not be acceptable.

5.2 Volume Limitations.

(a) Subject to Bellicum's adherence to its Forecast obligations pursuant to Section 5.1 above, or as specifically modified in a specific Module, Miltenyi shall meet the demands of any Purchase Orders (as defined below) that are made by Bellicum in compliance with the Forecasts. Miltenyi shall not be obligated to supply Bellicum with quantities of Miltenyi Product in excess of [...***...] percent ([...***...]%) of the most recent Forecast provided to Miltenyi but agrees to use [...***...] to satisfy Bellicum's requirement of Miltenyi Product in excess of [...***...] percent ([...***...]%) of the relevant Forecast quantities in accordance with the terms of this Agreement.

(b) In the event that Miltenyi becomes aware that it is or will be unable to supply any desired quantity of Miltenyi Product pursuant to a Purchase Order that falls within the relevant Forecast on or before the applicable Delivery date(s) therefor, Miltenyi shall promptly inform Bellicum, and then, the Parties shall, in good faith, seek to agree on a revised date (or dates) for Delivery. If Miltenyi fails to propose a reasonably acceptable plan for the Delivery, Bellicum may, to be determined in Bellicum's reasonable discretion and notwithstanding anything to the contrary in the Agreement, at its option, cancel the Purchase Order.

5.3 Firm Zone Requirements. Unless otherwise set forth in a relevant Module, the quantity of Miltenyi Product(s) forecasted for each Calendar Month of the Firm Zone of the most recent rolling Monthly Forecast submitted pursuant to Section 5.1(a) of this Agreement shall be binding on both Parties, commencing on the Effecctive Date of the Agreement (but not for the first three months thereto), and in each Calendar Month during the Term, Bellicum shall have the firm obligation to order at a minimum the amount of Miltenyi Product(s) specified for the first (1st) Calendar Month of the most recent rolling Monthly Forecast

(such amount, the "Firm Zone Requirements"). The Firm Zone Requirement shall not apply within the first three months of the Effective Date of the Agreement. Within [...***...] days of the end of each Calendar Quarter, Miltenyi will calculate the total Firm Zone Requirements for each of the three (3) Calendar Months during that Calendar Quarter. In the event that Bellicum fails to order the Firm Zone Requirements of Miltenyi Product from Miltenyi during any particular Calendar Month in the relevant Calendar Quarter in which Miltenyi was ready, willing and able to Deliver Miltenyi Product in accordance with the applicable Monthly Forecast, then the "Firm Zone Order Shortfall" shall be the total amount by which the Firm Zone Requirements for any given Calendar Month during such Calendar Quarter exceed the amount of Miltenyi Product actually ordered by Bellicum during such Calendar Month. Miltenyi will invoice Bellicum for an amount equal to the Firm Zone Shortfall and Bellicum will pay such invoice within [...***...] days of the invoice date. Upon Bellicum's request and subject to payment of the Firm Zone Shortfall amount by Bellicum, Miltenyi will, if so requested by Bellicum, provide Bellicum with Miltenyi's remaining stock of the relevant forecasted Miltenyi Products equal in value to such Firm Zone Shortfall amount.

5.4 Purchase Orders. This Section 5.4 sets forth a general framework for Purchase Order-related terms and conditions, which shall apply unless modified terms and conditions for a particular Bellicum Product are set forth in its corresponding Module.

(a) Bellicum shall order Miltenyi Products by submitting written purchase orders to Miltenyi, in such form as the Parties may agree from time to time and in accordance with any applicable Lead Times and the provisions of this Article 5 (each, a "Purchase Order"). All Purchase Orders (and any related acceptances or objections by Miltenyi) may be delivered electronically or by other means to Miltenyi's applicable sales representative located in the country of the shipping destination or to such location as Miltenyi shall reasonably designate from time to time.

(b) Each Purchase Order will specify the MB Global Contract Number assigned to this Agreement, the volumes of Miltenyi Product(s) ordered, the desired Delivery date(s) the Miltenyi Products are to be made available to Bellicum for pick-up by Bellicum's designated carrier or freight forwarder, the relevant ship-to address, and any special shipping instructions. Bellicum will order Miltenyi Product in a defined number of units, subject to reasonable minimum order size requirements that may vary according to product type.

(c) Bellicum shall submit each Purchase Order to Miltenyi reasonably prior to the desired Delivery date(s), which shall be no sooner than the applicable Lead Time(s) for the relevant Miltenyi Product(s); provided that absent an applicable Lead Time, the Purchase Order shall be submitted at least [...***...] days in advance of the desired Delivery date specified in such Purchase Order; and provided further that Miltenyi shall use diligent and good faith efforts to Deliver before the desiredDelivery date.

(d) Purchase Orders shall be firm and binding upon written acceptance by Miltenyi. Miltenyi shall confirm acceptance of the Purchase Order by written notice (sent by fax, mail, overnight courier or e-mail) to Bellicum within [...***...] Business Days of receipt of the Purchase Order from Bellicum. If Miltenyi fails to confirm acceptance of a Purchase Order within [...***...] Business Days of receipt of the Purchase Order from Bellicum, then Bellicum will contact Miltenyi to verify Miltenyi's receipt and acceptance of such Purchase Order and request written confirmation thereof from Miltenyi. Miltenyi shall accept all Purchase Orders for quantities of Miltenyi Product that are within the Firm Zone Requirement amounts specified for the relevant Calendar Month in the applicable Monthly Forecast.

(e) Each Purchase Order shall reference the MB Global Contract Reference Number (MBGCR) defined in the respective Modules, submitted by Bellicum to Miltenyi shall be governed exclusively by the terms and conditions of this Agreement, the relevant Module and the applicable Quality Agreement. None of the terms and conditions set forth on any Purchase Order, order form, invoice, acceptance, objection or similar document shall change or modify the terms and conditions of this Agreement, and the Parties hereby agree that the terms and conditions of this Agreement and the relevant Module shall

supersede any conflicting term or condition set forth in any Purchase Order, order form, invoice, acceptance, objection or similar document furnished by Bellicum to Miltenyi or by Miltenyi to Bellicum, as the case may be. For the avoidance of doubt, Purchase Orders may only contain products to be ordered under a single MBGCR. The combination of products referring to different MBGCR in one Purchase Order, or a combination of products referencing a MBGCR and products not referencing a MBGCR in one Purchase Order is not possible.

(f) In the event of a Bellicum Product safety issue, withdrawal or hold on use of a Bellicum Product by a Regulatory Authority or other issue that directly results in a material reduction or elimination of Bellicum's quantity requirements for a particular Miltenyi Product(s), the Parties will discuss promptly and in good faith adjustments to the permitted forecast variance described in Section 5.1(e) during the period when such circumstance exists, and other steps that could be taken to soften the impact of such circumstance on each Party.

5.5 Changes to Purchase Orders. Subject to Section 5.2 and applicable Lead Times, Miltenyi shall use [...***...] to comply with unplanned changes in Purchase Orders requested by Bellicum either in terms of quantities or Delivery dates. All requests for changes to Purchase Orders shall be submitted in writing. Bellicum shall be responsible for all supplementary costs that result from the implementation of any unplanned change to an accepted Purchase Order requested by Bellicum.

5.6 Minimum Purchases. This Section 5.6 sets forth a general framework for Minimum Purchases-related terms and conditions, which shall apply unless modified terms and conditions for a particular Bellicum Product are set forth in its corresponding Module. In the event Bellicum's aggregate purchases of Miltenyi Products from Miltenyi under this Agreement in any Calendar Year during the Term is less than [...***...]% of the Rolling Monthly Forecast subject to Sections 5.1 and 5.3, at the beginning of that Calendar Year or €[...***...] ([...***...] Euros), whatever is higher, (the "Minimum Purchase"), then Miltenyi shall provide written notice to Bellicum of such shortfall. Notwithstanding anything to the contrary in the foregoing, and for Calendar Year 2019 only, the €[...***...] amount recited as an element used to determine the Minimum Purchase in a Calendar Year is hereby reduced to €[...***...]. Bellicum shall have [...***...] days to tender a firm Purchase Order for the purchase of such shortfall to satisfy the Minimum Purchase requirements set forth above. If Bellicum fails to tender such firm Purchase Order and has not otherwise met the Minimum Purchase requirements within said [...***...]-day period, then Miltenyi, in its sole discretion, effective immediately upon Bellicum's receipt of written notice of Miltenyi's election to do so, shall have no obligation to Bellicum under this Agreement:

(1) not to discontinue the supply of any particular Miltenyi Product;

(2) to use [...***...] to ensure continuous supply of Miltenyi Products to Bellicum in accordance with Forecasts provided by or on behalf of Bellicum; and

(3) to provide Regulatory Work in accordance with Section 4.3.

Minimum Purchases referred to above will include the quantities of Miltenyi Product(s) ordered by Bellicum in accordance with applicable Forecasts that could not be supplied by Miltenyi. At the time Bellicum reaches the Minimum Purchase requirements again, Miltenyi and Bellicum shall in good faith agree to continue the supply commitment.

ARTICLE 6 DELIVERY

6.1 Delivery; Shipment.

(a) Each quantity of Miltenyi Product(s) ordered by Bellicum in a particular Purchase Order pursuant to this Agreement shall be delivered FCA (Incoterms 2010) Miltenyi's Facility by delivery

of the shipped goods to Bellicum's designated carrier or freight forwarder, in adequate packaging and ready for loading, on the Delivery Date ("Delivery").

(b) Each shipment of Miltenyi Products will be picked up by Bellicum's designated carrier on the agreed delivery date(s) (each, a "Delivery Date") confirmed by Miltenyi for the applicable Purchase Order in accordance with applicable Lead Time(s), during normal business hours (Monday to Friday, excluding statutory holidays) unless special arrangements are agreed to by Miltenyi in writing. Bellicum shall be responsible for all arrangements regarding loading, shipment, insurance from Miltenyi's Facility to the ultimate destination and import customs clearances at the destination country, except as otherwise agreed by the Parties in writing. Alternatively, upon Bellicum's written request, Miltenyi will make all necessary shipping arrangements on behalf of Bellicum with a carrier designated by Bellicum, on Bellicum's responsibility. Bellicum shall provide Miltenyi with a list of approved carriers. Bellicum also shall be responsible for all of the following costs and charges, as applicable: loading charges of the designated carrier, freight charges and other shipping expenses from Miltenyi's Facility to the ultimate destination, expenses for insurance of goods during transit, import customs clearances.

(c) Upon Delivery, Bellicum will cause its carrier to verify the gross and visually observable physical integrity of all Miltenyi Product packaging prior to loading and to acknowledge proper receipt of the Miltenyi Products by signing the relevant transport documentation.

(d) Miltenyi shall have the Miltenyi Products appropriately labelled with a traceable lot or batch number and packaged for shipping in commercial packaging materials in compliance with Agreed Standards, Miltenyi's standard procedures and, the applicable Quality Agreement.

(e) Quantities actually Delivered to Bellicum or Bellicum's designee pursuant to an accepted Purchase Order may not vary from the quantities reflected in such Purchase Order without Bellicums' prior written consent; provided, however, that if Bellicum so consents to a variance in quantities actually Delivered (as compared to quantities set forth in an accepted Purchase Order), Bellicum shall only be invoiced and required to pay for the quantities of Miltenyi Product that Miltenyi actually Delivered to Bellicum or Bellicum's designee. In the event that Bellicum consents to accept Delivery of less than the quantities of Miltenyi Product in an accepted Purchase Order, Miltenyi shall include, in the next shipment of Miltenyi Product to Bellicum, any quantities ordered pursuant to an accepted Purchase Order but not actually delivered on the designated Delivery date. If a delay in any such Delivery of Miltenyi Products exceeds ten (10) Days, then Bellicum may require a pro rata reduction in its then-current Monthly Forecast to account for such delay.

6.2 Title and Risk. Title and risk of loss or damage to Miltenyi Products shall pass to Bellicum as defined by Incoterm FCA (Incoterms 2010). Should any of the Delivered Miltenyi Products be damaged during transit to Bellicum or Bellicum's designee, then notwithstanding anything to the contrary in Section 5.4, a replacement order to replace such damaged Miltenyi Products shall be fulfilled, even if the volume limitations defined in Section 5.2 are exceeded, by Miltenyi in good faith and as soon as practicable (and such replacement order shall be considered a new Purchase Order during the applicable Firm Zone).

6.3 Partial Delivery. With Bellicum's specific prior written consent, Miltenyi may make partial shipment against Purchase Orders, to be separately invoiced with each shipment and paid for when due in accordance with this Agreement. For such partial shipments, Miltenyi will pay all shipment costs associated with such subsequent or additional shipments.

6.4 Minimum Guaranteed Shelf Life. Miltenyi shall ensure that, at the time of Delivery the remaining shelf life of each shipped Miltenyi Product shall be no less than the minimum shelf life set forth in Exhibit B as such Exhibit B Module may be amended from time to time by written notification of Miltenyi to Bellicum. As of the Effective Date the Minimum Guaranteed Shelf Life of certain Miltenyi Products is relatively short and thus requires Bellicum to perform a tight materials management (i.e. short-termed

ordering of such Miltenyi Products) regarding production planning of Bellicum Product. The Parties mutually agree to use their [...***...] to implement any back-office activities as necessary to implement a) an increased Minimum Guaranteed Shelf Life and/or b) improvements to material management and production planning to address the challenge in the previous sentence and the Parties agree to provide to each other reasonable assistance where practicable to implement such back-office changes as necessary, taking into account cost, resource and capacity requirements.

6.5 Certificates. Miltenyi shall include proper release certificates, certificates of compliance, and/or certificates of analysis with all shipments of Miltenyi Product, as applicable, in accordance with the requirements of the Quality Agreement.

6.6 Product Shortage. Miltenyi shall promptly notify Bellicum of any potential or anticipated shortfall in the manufacturing or inventory of any Miltenyi Product that may adversely affect the Delivery of such Miltenyi Product in accordance with Bellicum's forecast requirements and pending Purchase Orders therefor. If Miltenyi is unable to supply any Miltenyi Product subject to a pending Purchase Order for any reason, then the Parties shall, in good faith, seek to agree on a revised date (or dates) for Delivery and Miltenyi shall undertake prompt and diligent efforts to mitigate the adverse impact on Bellicum. In the case of a limited availability of any Miltenyi Product, in selling such Miltenyi Product, Miltenyi shall take into account the aggregate volume of Miltenyi Products purchased by Bellicum, and shall subject to reasonable ethical standards provide to Bellicum priority access to Miltenyi Product consistent with such Miltenyi Product purchase volumes and critical medical needs. If due to the fault or error of Miltenyi or a Third-Party supplier or Subcontractor of Miltenyi or Force Majeure, Miltenyi fails to deliver any Miltenyi Product in the quantities specified in Bellicum's Purchase Order, Miltenyi shall use all [...***...] that may be necessary in order to minimize the shortfall, and deliver the ordered Miltenyi Product as soon as possible. If Miltenyi fails to propose a reasonably acceptable plan for the Delivery or if the delay is more than thirty (30) days following the confirmed Delivery Date, Bellicum may, at its reasonable election and notwithstanding anything to the contrary in the Agreement, cancel the Purchase Order(s) without penalty.

6.7 Continuity of Supply.

(a) Contingent upon Bellicum's continued adherence to its obligations in accordance with this Agreement, including the Forecast obligations and Firm Zone Requirements pursuant to Sections 5.1 and 5.3 above, Miltenyi shall use [...***...] have and devote adequate manufacturing capacity to ensure continuous supply of Miltenyi Products to Belicum in accordance with the Forecasts during the Term, in accordance with the provisions of this Section 6.7. However, Miltenyi's compliance with this Section 6.7(a) shall not require Miltenyi to incur any significant expenses to purchase new equipment, to install equipment purchased or requested by Bellicum, or to add (or, for clarity, allocate or dedicate) additional manufacturing or storage capacity for the manufacturing and supply of Miltenyi Products to Bellicum hereunder.

(b) In the event that Miltenyi becomes aware that it will not be able, or is likely not to be able, to produce all of Bellicum's forecast requirements of Miltenyi Products from its primary facility located in Bergisch Gladbach, Germany, Miltenyi shall determine, at its option and expense, to establish additional or alternative manufacturing and supply capability for the Miltenyi Products by qualifying and maintaining one or more back-up manufacturing facilities at the premises of Miltenyi and/or any of its Affiliates (each, a "Secondary Location"). Use of a Secondary Location must be notified to Bellicum in writing in accordance with the Change Notification processes set forth in Section 3.2. Miltenyi shall use its best efforts to provide to Bellicum with a commercially reasonable number of samples of the "Secondary Location Miltenyi Products" (meaning such Miltenyi Products that are produced at such Secondary Location) for evaluation by Bellicum as soon as each such Secondary Location Miltenyi Product becomes available during the post-noficiation period. In the event that Miltenyi decides to qualify a Secondary Location for the supply of Miltenyi Products hereunder, it shall provide reasonable prior written notice thereof (not less than

six (6) months in advance) to Bellicum, including such details as Bellicum reasonably requires to assess the qualifications of such Secondary Location. Miltenyi shall have sole responsibility for all activities in connection with the setup and approval of the Secondary Location, including for establishing proof of product equivalence for Miltenyi Products produced at the Secondary Location, process and equipment validation and for filing all submissions or other correspondence with Miltenyi's applicable Regulatory Authorities in connection with the Secondary Location.

(c) In addition, Miltenyi may from time to time determine, in its sole discretion, to have one or more Miltenyi Products manufactured, assembled and/or supplied, in whole or in part, by a Subcontractor chosen by Miltenyi and reasonably acceptable to Bellicum. Miltenyi shall provide Bellicum with prior written notification of such Change in accordance with the applicable notification procedures as set forth in the Section Change Control and in the Quality Agreement, if applicable. Notwithstanding the foregoing, Miltenyi shall remain responsible for the fulfilment of its supply and other obligations hereunder with respect to any Miltenyi Product manufactured by Miltenyi's Subcontractor. Miltenyi shall be solely responsible for providing proof of product equivalence and for filing all submissions or other correspondence with the applicable governmental or regulatory authorities in connection with any decision to seek approval of a Third Party subcontractor site for the Miltenyi Products. Further, Miltenyi shall be solely responsible for all process and equipment validation required by the responsible Regulatory Authorities and the regulations thereunder and shall take all steps reasonably necessary to pass government inspection by such Regulatory Authorities

(d) In addition, the Parties shall from time to time discuss in good faith and mutually and reasonably agree upon (i) whether one or more Miltenyi Products require a minimum inventory to be held by Bellicum, and (ii) whether there shall be any type of Miltenyi Product that require a minimum inventory to be held by Miltenyi on behalf of Bellicum and under which terms and conditions such minimum inventory shall be reserved for Bellicum.

6.8 Continuity of Supply – Commercial Phase.

If a given Module involves supply of Miltenyi Products for Bellicum's Commercial Phase activities, Section 6.8(b) shall apply, provided that additional terms and conditions regarding continuity of supply for such Commercial Phase activities pursuant to such Module have been negotiated in good faith and mutually agreed upon in such Module. The Parties acknowledge that provisions in such Module relating to additional terms and conditions regarding such continuity of supply will depend on the specific Miltenyi Product(s) that are relevant to such Module, and further acknowledge that such provision(s) in such Module may be subject to the Parties' good faith negotiation and mutual agreement regarding additional terms and conditions relevant to minimum purchase requirements (if any) for Miltenyi Product(s) under a Module.

(a) Principal Terms.

(1) In the event of a Supply Failure (as defined below), Bellicum shall have the option to request Miltenyi to establish, as soon as reasonably feasible and at Miltenyi's sole cost and expense, a Secondary Location reasonably capable of making up the Supply Failure of the affected Miltenyi Product (the "Affected Miltenyi Product"), and if Miltenyi should either (i) notify Bellicum in writing that it is not willing and/or capable to establish a Secondary Location, or (ii) should not have established such Secondary Location and made up the Supply Failure within a reasonable period of time with regard to the Affected Miltenyi Product from receipt of Bellicum's written request therefore, then Bellicum shall, at Bellicum's sole cost and expense, have the right to select, qualify, and maintain an additional second source manufacturing facility as a back-up manufacturing facility for the Affected Miltenyi Products at the premises of a Third Party (the "Second-Source Supplier"). In the event that Bellicum elects to qualify a Second-Source Supplier for an Affected Miltenyi Product, it shall provide Miltenyi with prior written notice to Miltenyi including such details as Miltenyi reasonably requires to assess the qualifications of such Second-Source Supplier. Any such Second-Source Supplier shall be subject to the prior written consent of Miltenyi, which

shall not be unreasonably withheld, conditioned or delayed, except as necessary in Miltenyi's reasonable judgment to protect the bona fide and legitimate interests of Miltenyi in protecting its proprietary Intellectual Property Rights from misappropriation or misuse (e.g., by disclosure to a Miltenyi Competitor). If Miltenyi so withholds its consent, it shall propose alternative Second-Source Suppliers reasonably acceptable to both Miltenyi and Bellicum. If the Parties fail to identify a mutually acceptable Second-Source Supplier within thirty (30) days, Bellicum may proceed with an alternative Second-Source Supplier of its choice (however not a Miltenyi Competitor) without Miltenyi's consent.

(2) For purposes hereof, each of the following events shall be deemed a "Supply Failure":

(i) if Miltenyi, using [...***...], fails to deliver to Bellicum at least [...***...]% (on a Miltenyi Product-by-Miltenyi Product basis) of an accepted Purchase Order of Miltenyi Product placed by Bellicum in accordance with the relevant binding Forecast within a reasonable period of time after the agreed Delivery Date therefor (whether by reason of Force Majeure or otherwise) more than twice during any Calendar Year; provided, however, that any of the foregoing events shall not be considered a Supply Failure to the extent that it results from:

(x) an act or omission of Bellicum, including any specific written instructions or requirements issued by Bellicum, including an Bellicum-Requested Change; or

(y) the failure or delay on the part of any supplier of materials designated and required by Bellicum or any other Subcontractor designated and required by Bellicum; or

(z) a Required Change or other change in any material requirement relating to the development, manufacturing, packaging and shipping of Miltenyi Product at Miltenyi's facility required by Applicable Laws, or the imposition of any other condition with respect to the Miltenyi Product by any governmental body or agency, or Regulatory Authority, based on Applicable Laws, or an event of Force Majeure, unless Miltenyi fails to use [...***...] to remedy the failure, inability, or delay within a reasonable period of time. In the event of the foregoing failures, inabilities, or delays, the Parties shall meet and discuss in good faith how to remedy the situation.

(ii) If Miltenyi fails to Deliver to Bellicum at least [...***...]% (on a Miltenyi Product-by-Miltenyi Product basis) of an accepted Purchase Order, then for that Miltenyi Product affected by such failed Delivery, the next step in the Discount scheme set forth in Exhibit F shall be applied to such Miltenyi Product during the following two (2) Calendar Quarters (and a repeated failure shall result in further step in the Discount scheme being applied in like manner).

(3) In the event that Bellicum selects a Second-Source Supplier over Miltenyi's reasonable objection, Miltenyi shall not be responsible to Bellicum for the performance of the said Second-Source Supplier. Any such Second-Source Supplier shall, as a condition of qualification, provide reasonable and customary undertakings to Miltenyi related to the protection of Miltenyi's Confidential Information. Bellicum shall be primarily responsible, with Miltenyi's reasonable cooperation and assistance, for providing proof of product equivalence and for filing all submissions or other correspondence with the applicable governmental or regulatory authorities in connection with any decision to seek approval of a manufacturing facility as Second-Source Supplier for Affected Miltenyi Product. Further, Bellicum shall be primarily responsible, with Miltenyi's reasonable assistance, for all process and equipment validation

required by the responsible Regulatory Authorities and the regulations thereunder and shall take all steps reasonably necessary to pass government inspection by such Regulatory Authorities.

(4) In the event of a Supply Failure, Miltenyi shall grant Bellicum's Second-Source Supplier a limited, non-exclusive, non-transferable, one-site production license, without the right to sublicense, under Miltenyi's Intellectual Property Rights solely to the extent reasonably necessary to manufacture the Affected Miltenyi Product for the Permitted Use by Bellicum at Bellicum's cost. For the avoidance of doubt, a Second-Source Supplier's license under this subsection shall not permit the manufacture of any Miltenyi Product that is not subject to Supply Failure. A Second-Source Supplier's license hereunder shall subsist until such time as Miltenyi and Bellicum reach agreement on alternative license and/or supply arrangements which shall, inter alia, take into consideration: (i) Miltenyi's interest in regaining control over the manufacture of Miltenyi Products, (ii) Bellicum's interest in securing continuity of supply of the Affected Miltenyi Product(s), (iii) the costs incurred by Bellicum in establishing the Second-Source Supplier to rectify the applicable Supply Failure, (iv) the avoidance of potential adverse effects (supply disruption) that may result from the transfer of manufacturing back to Miltenyi, and (v) the appropriate sharing of costs resulting from the Supply Failure.

(5) In furtherance of the Second-Source Supplier's license grant pursuant to subsection (4) above, Miltenyi shall, to the extent reasonably necessary:

(i) provide the Second-Source Supplier, subject to a non-disclosure agreement on terms no less restrictive than those set forth herein, with prompt access to the documentation, protocols, assays, SOPs, materials, including biological materials, and other know-how and information constituting the manufacturing process of the Affected Miltenyi Product(s);

(ii) assist the Second-Source Supplier with the working up and use of Miltenyi's technology, including providing a reasonable level of technical assistance and consultation;

(iii) provide the Second-Source Supplier with additional disclosures of information and technical assistance and consultation as necessary to keep the Second-Source Supplier informed of the then-current Miltenyi Intellectual Property Rights and the then-current manufacturing process(es) for the Affected Miltenyi Product(s); and

(iv) provide such other assistance to Bellicum and the Second-Source Supplier as may be reasonably required to give effect to such license.

(6) Unless Miltenyi is in material breach, Bellicum will pay for work requested by Bellicum and conducted by or on behalf of Miltenyi, and reimburse Miltenyi for all reasonable and necessary costs and expenses incurred by Miltenyi, in establishing and maintaining Bellicum's Second-Source Supplier for an Affected Miltenyi Product.

ARTICLE 7 ACCEPTANCE AND REJECTION.

7.1 Acceptance Testing. Bellicum or (for Miltenyi Product purchased by Bellicum but shipped directly to a Bellicum's Affiliate, Subcontractor, or Licensee) Bellicum's designated recipient of the

shipment of Miltenyi Product will promptly upon Delivery visually inspect each shipment of Miltenyi Product delivered hereunder to (i) determine whether such Miltenyi Product is damaged and (ii) verify that the quantity of Miltenyi Product delivered conforms with the Purchase Order and other applicable documentation. Further, Bellicum shall have a period of [...***...] days from the date of Delivery to

perform, or have its Affiliate, Subcontractor, or Licensee (as the case may be) perform, incoming quality assurance testing on each shipment of Miltenyi Product in accordance with the Bellicum-approved quality control testing procedures as set forth in the Product Specifications or the Quality Agreement, as applicable (the "Testing Methods"), to verify conformance with the Product Specifications. For the avoidance of doubt, Bellicum shall have no obligation under this Section 7.1 to inspect or test the contents of the Miltenyi Products other than as in accordance with the agreed Testing Methods, save as prescribed by Applicable Laws.

7.2 Rejection. Bellicum or its designee shall have the right to reject any shipment of Miltenyi Products that does not conform with the applicable Miltenyi Product Warranty at the time of Delivery when tested in accordance with the Testing Methods (each, a "Rejected Product"). Except in the case of latent defects as described in Section 7.3, each shipment of Miltenyi Products shall be deemed accepted by Bellicum if Bellicum or its designated recipient of the shipment does not provide Miltenyi with written notice of rejection (a "Rejection Notice") within [...***...] days from the date of receipt of the relevant shipment of Miltenyi Product, describing the reasons for the rejection and the non-conforming characteristics of such Rejected Product in reasonable detail. Once a Delivery of Miltenyi Products is accepted or deemed accepted hereunder, Bellicum shall have no recourse against Miltenyi in the event any such Miltenyi Product is subsequently deemed unsuitable for use for any reason, except for Miltenyi Product that does not conform to the Miltenyi Product Warranty after said 30-day period due to a latent defect in the Miltenyi Product that could not be detected through the performance of the Testing Methods.

7.3 Latent Defects. Bellicum shall have the further right to reject such quantities of Miltenyi Product accepted or deemed accepted pursuant to Section 7.2 above by providing a Rejection Notice on the grounds that all or part of the shipment fails to comply with the Miltenyi Product Warranty to the extent such non-conformance could not have reasonably been determined by visual inspection or incoming quality assurance testing in accordance with Section 7.1, provided that the applicable shelf-life of the Miltenyi Product has not expired and such non-conformance is unrelated to the shipping or storage of the Miltenyi Product after Delivery. The rejection provisions of Section 7.2 above shall apply. Notification to Miltenyi by Bellicum must occur within [...***...] days after Bellicum or Bellicum's designated recipient of the shipment becomes aware or reasonably should have become aware that the Miltenyi Product fails to comply with the Miltenyi Product Warranty.

7.4 Confirmation. After its receipt of a Rejection Notice from Bellicum or its designee pursuant to Section 7.2, Miltenyi shall notify Bellicum in writing as soon as reasonably practical whether or not it accepts Bellicum's basis for rejection, and Bellicum shall reasonably cooperate with Miltenyi in determining in good faith whether such rejection was necessary or justified. Upon Miltenyi's reasonable request, Bellicum shall provide, or cause its designees to provide, (i) evidence of appropriate transport, storage and handling for any Rejected Product in accordance with the storage and handling instructions set forth in the applicable Product Specifications; and (ii) reasonable testing data demonstrating that the Miltenyi Product in question does not conform to the Miltenyi Product Warranty. If the Parties are unable to agree as to whether a shipment of Miltenyi Products supplied by Miltenyi hereunder conforms to the applicable Miltenyi Product Warranty, such question shall be submitted to an independent quality control laboratory mutually agreed upon by the Parties. The findings of such independent quality control laboratory shall be binding upon the Parties. The cost of the independent quality control laboratory shall be borne by the Party whose results are shown by such laboratory to have been incorrect.

7.5 Return or Destruction of Rejected Products. Bellicum may not return or destroy any batch of Miltenyi Products until it receives written notification from Miltenyi that Miltenyi does not dispute that such batch fails to conform to the applicable Miltenyi Product Warranty. Miltenyi will indicate in its notice either that Bellicum is authorized to destroy the rejected batch of Miltenyi Products, or that Miltenyi requires return of the rejected Miltenyi Products. Upon written authorization from Miltenyi to do so, Bellicum shall promptly destroy the rejected batch of Miltenyi Products and provide Miltenyi with written certification of

such destruction. Upon receipt of Miltenyi's request for return, Bellicum shall promptly return the rejected batch of Miltenyi Products to Miltenyi. In each case, Miltenyi will reimburse Bellicum for the documented, reasonable costs associated with the destruction or return of the rejected Miltenyi Products.

7.6 Replacement or Refund. Bellicum shall not be required to pay any invoice with respect to any shipment of Miltenyi Products properly rejected pursuant to this Section 7.2. Notwithstanding the foregoing, Bellicum shall be obligated to pay in full for any rejected shipment of Miltenyi Products that is not returned or destroyed in accordance with Section 7.5 above, and that is subsequently determined to conform to the applicable Miltenyi Product Warranty, irrespective of whether Bellicum has already paid Miltenyi for a replacement shipment (but in such event, the replacement shipment will be Delivered to Bellicum and will be included in Bellicum's Minimum Purchases). If Bellicum pays in full for a shipment of Miltenyi Products and subsequently properly rejects such shipment in accordance with Section 7.2, Bellicum shall be entitled, upon confirmation that such shipment failed to conform to the applicable Miltenyi Product Warranty, either, at Bellicum's option: (i) to a refund or credit equal to the Product Price paid with respect to such rejected shipment (including without limitation, taxes paid and shipping expenses); or (ii) to require Miltenyi to promptly replace and Deliver to Bellicum an amount of Miltenyi Products that conforms to the requirements of this Agreement at no additional cost to Bellicum. Bellicum acknowledges and agrees that Bellicum's rights to a refund or credit for, or to receive replacement of, properly rejected shipments of Miltenyi Products hereunder shall be Bellicum's sole and exclusive remedy, and Miltenyi's sole obligation, with respect to non-conforming Miltenyi Products delivered hereunder.

7.7 Exceptions. Bellicum's rights of rejection, return, refund and replacement set forth in this Article 7 shall not apply to any Miltenyi Product that is non-conforming due to damage (i) caused by Bellicum, its Affiliates, Subcontractors, or Licensees or their respective employees or agents, including but not limited to, misuse, neglect, improper storage, transportation or use beyond any dating provided, or (ii) that occurs after Delivery of such Miltenyi Product in accordance with this Agreement, including any damage caused thereafter by accident, fire or other hazard, and Miltenyi shall have no liability or responsibility to Bellicum with respect thereto.

ARTICLE 8 FINANCIAL TERMS

8.1 Upfront Payment. Following execution of this Agreement and within [...***...] days of Bellicum's receipt of an invoice therefor, and as consideration for (i) the right to use certain Miltenyi Products for human use, including the right to cross-reference to the Master File(s) and Miltenyi's additional filings in connection with such Master File(s) as described in Article 4; (ii) Miltenyi's obligation to supply certain Miltenyi Products for human clinical trials and commercialized human use; and (iii) Miltenyi's support of Bellicum's development and commercialization efforts regarding Bellicum Products, Bellicum will pay to Miltenyi a non-refundable upfront fee in the aggregate amount of two million Euro (€2,000,000) (the "Upfront Fee"). The Upfront Fee will be paid in installments, as follows: (a) a first installment of [...***...] Euro (€[...***...]), to be invoiced by Miltenyi following execution of this Agreement; (b) a second installment of [...***...] Euro (€[...***...]), to be invoiced by Miltenyi following the first anniversary of the Effective Date.

8.2 Milestone Payments. For each particular Bellicum Product, Bellicum will pay to Miltenyi [...***...], one-time only milestone payments of [...***...] Euro (€[...***...]) each, [...***...] milestone payment corresponding to [...***...], and [...***...] milestone payment corresponding to [...***...], or [...***...], whatever comes earlier, respectively, of such Bellicum Product, as set forth in such Bellicum Product's or Bellicum Program corresponding Module(s).

8.3 Third Party Fees and Royalties. Bellicum will reimburse Miltenyi for Third Party royalties and/or license fees, if any, owed by Miltenyi under Third Party license agreements existing as of the Effective Date as set forth on Exhibit D solely to the extent Miltenyi's exercise of rights under such licenses is required

to supply Miltenyi Product to Bellicum under this Agreement for the Permitted Use; and further provided that amounts owed under such Third Party license agreements have not otherwise been passed through to Bellicum and are actually paid by Miltenyi to Miltenyi's licensor(s). Bellicum acknowledges that the potential volume of such Third Party royalties and/or license fees under applicable Third Party license agreements will be as set forth on Exhibit D, as updated from time to time by Miltenyi. If, during the Term of this Agreement, the Parties mutually agree to obtain additional Third Party licenses to enable the Permitted Use of Miltenyi Products by Bellicum, its Affiliates, Subcontractors, and/or Licensees under this Agreement, and such additional licenses give rise to Third Party royalties and/or license fees with respect to Bellicum's use of Miltenyi Products under this Agreement, then the Parties will negotiate in good faith which Party(ies) is/are responsible for payment of such Third Party royalties and/or license fees. Miltenyi, acting reasonably, reserves the right to defer the inclusion of additional Miltenyi Products in Exhibit B hereto until the Parties have reached agreement on this matter.

8.4 Pricing

(a) Product Price. In consideration of the supply and Delivery of Miltenyi Products under and in accordance with this Agreement, Miltenyi agrees to sell and Deliver and Bellicum agrees to purchase Miltenyi Products under and in accordance with this Agreement at the Purchase Price listed for each unit of a Miltenyi Product set forth on Exhibit E (the "Product Price").

(b) Tiered Pricing. Bellicum shall be entitled to a reduction of the Product Prices set forth in Exhibit F (collectively, the "Discounts"). The Discount, as applicable to a particular Miltenyi Product in a Calendar Year, shall be based on Bellicum's and its Subcontractors' and Licensees' consolidated volume purchases of such Miltenyi Product in a Calendar Year. Within the first Calendar Year, Miltenyi shall analyze Bellicum's and its Subcontractors' and Licensees' purchases of Miltenyi Products at the end of each Calendar Quarter; if such purchases for a particular Miltenyi Product exceed the volume threshold of the then applicable Discount (based on binding and firm Purchase Orders received by Miltenyi in that Calendar Quarter), then, in the following Calendar Quarter, for all Purchase Orders regarding such Miltenyi Product, the corresponding higher Discount level in accordance with the volume thresholds as defined in Exhibit F shall apply. Subject to Bellicum reaching the Minimum Purchase requirements in accordcance with Section 5.6 in a Calendar Year, for the subsequent Calandar Year, the Discount applicable for the first Discount volume threshold shall apply, beginning from the first Miltenyi Product ordered by Bellicum under this Agreement during such subsequent Calendar Year.

(c) Purchase Price Adjustments. Miltenyi shall be entitled to modify the Purchase Price for any Miltenyi Product as set forth in Section 8.3(a) above and Exhibit E on or after the commencement of each Calendar Year during the Term after Contract Year 1 in accordance with this Section 8.4(c), provided that there shall not be more than one (1) Purchase Price increase with respect to the same Miltenyi Product in any given Contract Year during the Term. In case, after application of the applicable Discount, any Purchase Price increases [...***...] percent ([...***...]%) annually, then the Parties shall consult each other, negotiate in good faith and agree in writing upon an adaptation of the applicable Discount to stay within the capping of a [...***...] percent ([...***...]%) increase, except for cases when such Purchase Price increase is the result of a documented increase of more than [...***...] ([...***...]%) in the cost of any raw materials, packaging and/or other components used in the manufacture of Miltenyi Product and Miltenyi, at Bellicum's request, has provided reasonable documentation evidencing such changes in production costs. It is however expressly agreed between the Parties that the adjusted Purchase Price charged to Bellicum for Miltenyi Product supplied hereunder shall in no event exceed Miltenyi's then-current list prices for such Miltenyi Product as in effect in the country of destination or use of the applicable Miltenyi Product, as published from time to time in Miltenyi's applicable product catalogue.

(d) Product Price Adjustments resulting from Changes. The Parties acknowledge and agree that the limitations on Product Price increases set forth in Section 8.3(c) above shall not apply to

Product Price adjustments resulting from a Required Change or a Bellicum-Requested Change pursuant to Section 3.2(d) hereof.

8.5 Payment Terms. The payment terms for all payments made by Bellicum for purchased Miltenyi Products shall be as follows:

(a) Except as otherwise provided herein, all undisputed and properly due payments are payable within [...***...] days of Bellicum's receipt of each invoice corresponding to a shipment of Miltenyi Products by Miltenyi, such invoices to be issued by Miltenyi or the applicable Miltenyi Affiliate in the Forecast Territory.

(b) Bellicum shall make all payments by wire transfer or electronic fund transfer in immediately available funds to an account designated by Miltenyi or its local Affiliate in the Forecast Territory, as applicable. All payments by Bellicum to Miltenyi or its Affiliate (as the case may be) under this Agreement shall be made in the local currency that applies to the Miltenyi company that is assigned to fulfill the respective Purchase Order for Miltenyi Products.

(c) All sums payable by Bellicum under this Agreement are stated exclusive of sales tax and VAT.

(d) Without prejudice to any other right or remedy available to Miltenyi, Miltenyi reserves the right to assess a late fee equal to [...***...] percent ([...***...]%) per month, or if lower, the maximum amount permitted by Applicable Law, on all undisputed and properly due amounts not paid by Bellicum when due. Bellicum acknowledges that failure by Bellicum to comply with its payment obligations in this Article 8 shall constitute a material breach.

(e) Except as expressly provided herein, Bellicum shall not exercise any right of setoff, net-out or deduction, take any credit, or otherwise reduce the balance owed to Miltenyi with respect to any payments under this Agreement, unless the Parties otherwise agree or until Bellicum has obtained a final and non-appealable judgment against Miltenyi in the amount asserted by Bellicum.

8.6 Taxes. All payments made under this Agreement shall be free and clear of any and all taxes, duties, levies, fees or other charges, except for withholding taxes. Each Party shall be entitled to deduct from its payment to the other Party under this Agreement the amount of any withholding taxes required to be withheld, to the extent paid to the appropriate governmental authority on behalf of the other Party (and not refunded or reimbursed). Each Party shall deliver to the other Party, upon request, proof of payment of all such withholding taxes. Each Party shall provide reasonable assistance to the other Party in seeking any benefits available to such Party with respect to government tax withholdings by any relevant law, regulation or double tax treaty.

8.7 Right to Suspend. Without prejudice to any other right or remedy available to Miltenyi, Miltenyi shall have the right to suspend its performance under this Agreement if and to the extent Bellicum materially fails to perform its payment obligations under this Agreement and fails to cure such failure within five Business Days after confirmed receipt of a notice of breach from Miltenyi. For the avoidance of doubt, the failure by Bellicum to make timely payments of any material, undisputed amount that is properly due Miltenyi under this Agreement shall constitute a material failure of Bellicum to perform its payment obligations under this Agreement. Without prejudice to any other right or remedy available to Bellicum, Bellicum shall have the right to suspend payment under this Agreement if and to the extent Miltenyi materially fails to perform its obligations under this Agreement.

ARTICLE 9 INSPECTION

9.1 Facility Audits. Upon commercially reasonable notice (to be provided not less than [...***...] days in advance) and during Miltenyi's normal business hours, but not more often than once every [...***...] months, except for cause, during the Term of this Agreement, Bellicum or Bellicum's Licensees duly authorized agents, representatives or designees may inspect those portions of Miltenyi's Facilities that are used to manufacture, store or conduct testing of Miltenyi Products to determine compliance with Agreed Standards, Applicable Laws and the applicable Quality Agreement. Such representatives shall comply with the applicable rules and regulations for workers at such Facilities and shall enter into reasonable confidentiality and non-use agreements if so requested by Miltenyi, as a representative of Bellicum or such Licensee (and not in an individual capacity). All audits shall be conducted in a manner that is intended to minimize disruption to the operations at such Facilities. Miltenyi shall promptly address and correct any deviations from Agreed Standards, Applicable Laws and/or the provisions of the applicable Quality Agreement identified in connection with such inspections.

9.2 Exempt Documentation. Miltenyi reserves the right, at its sole discretion, to exempt certain documentation from such audit described in Section 9.1 if and to the extent this is reasonably required in order to protect Miltenyi's trade secrets in Miltenyi Technology and/or other Miltenyi Intellectual Property Rights or Third Party Intellectual Property rights. If such exemption will have a material impact on the scope of a representative's inspection, the Parties will discuss in good faith other means to provide sufficient information to such representative.

9.3 Inspection by Regulatory Authority. Miltenyi shall permit inspections of the Miltenyi Facility by Regulatory Authorities and shall respond to any notices or requests for information by Regulatory Authorities for any import or export license, registration or pending registration for manufacturing of Miltenyi Products during the Term of the Agreement. Miltenyi shall permit representatives of any applicable Regulatory Authority to access, at any reasonable time during normal business hours, any and all relevant records and information, personnel and facilities. To the extent that a Regulatory Authority raises any quality issue during or following a Regulatory Authority inspection that would Bellicumbe reasonably likely to adversely affect the suitability of the Miltenyi Products for any Permitted Use, Miltenyi shall promptly advise Bellicum in writing of such issue. The Parties will promptly give written notice to each other in advance of any scheduled inspection of Miltenyi's Facility by a Regulatory Authority.

9.4 Cost of Audits and Inspections. If Bellicum or or Bellicum's Licensees conduct a Facility audit or inspection more than [...***...] in a [...***...] month period, and such additional audits are not "for cause" audits, then Bellicum and its Licensees (as applicable) shall reimburse Miltenyi for all reasonable out-of-pocket expenses reasonably incurred by Miltenyi as a direct result of Facility audits and/or inspections pursuant to Sections 9.1and 9.3 solely to the extent that they relate to the review of a Bellicum Product. For clarity, Bellicum shall not be liable, in any event, for any costs and expenses incurred by Miltenyi to correct deficiencies of Miltenyi manufacturing procedures in order to comply with: 1) Agreed Standards, Applicable Laws, the applicable Quality Agreement and Product Specifications; 2) inspection of a Miltenyi Product in general; and 3) inspection of a Third Party product.

ARTICLE 10 INTELLECTUAL PROPERTY

10.1 Existing Intellectual Property. Except as the Parties may otherwise expressly agree in writing, each Party shall continue to own all rights, including all Intellectual Property Rights, in and title to its Technology existing as of the Effective Date or developed during the Term but outside the scope of this Agreement, without conferring any interests therein on the other Party. Without limiting the generality of the preceding sentence, as between the Parties, the Parties acknowledge and agree that (i) Miltenyi owns and shall continue to own all rights (including all Intellectual Property Rights) in the Miltenyi Technology included in the Miltenyi Products supplied to Bellicum, and Bellicum shall not acquire any right, interest in or title to the Miltenyi Technology by virtue of this Agreement or otherwise, and (ii) Bellicum owns or

controls and shall continue to own and control all rights (including all Intellectual Property Rights) in the Bellicum Technology and Bellicum Products (and any Intellectual Property rights thereof), and Miltenyi shall not acquire any right, interest in or title to the Bellicum Technology and Bellicum Products (and any Intellectual Property rights thereof) by virtue of this Agreement or otherwise.

10.2 Limited License. Miltenyi hereby grants to Bellicum, subject to all the terms and conditions of this Agreement, a limited non-exclusive right and license under the Miltenyi Technology incorporated or embodied in the Miltenyi Products supplied hereunder), solely to use such Miltenyi Products for the Permitted Use. The foregoing license shall be sub-licensable through multiple tiers to Licensees of Bellicum and to Bellicum's and its Licensees' respective Subcontractors (but not to Miltenyi Competitors) solely in conjunction with the use of such Miltenyi Products for the Permitted Use, provided however that Subcontractors shall not have the right to grant sublicenses under Miltenyi Technology). For the avoidance of doubt, the license granted to Bellicum under this Section 10.2 conveys no right to Bellicum, its Subcontractors or Licensees to use Miltenyi Technology to make, have made, import, have imported, offer for sale and/or sell any Miltenyi Product.

10.3 Notification. Miltenyi will promptly notify Bellicum in writing of Miltenyi's receipt of any written claim or demand from any Third Party alleging that the practice of Miltenyi Technology infringes such Third Party's Intellectual Property Rights, or Miltenyi's receipt of written notice of the initiation of any legal action or other legal proceeding by any Third Party alleging that the practice of Miltenyi Technology infringes such Third Party's Intellectual Property Rights.

10.4 Disclaimer. Except as otherwise expressly provided herein, nothing contained in this Agreement shall be construed or interpreted, either expressly or by implication, estoppel or otherwise, as: (i) a grant, transfer or other conveyance by either Party to the other of any right, title, license or other interest of any kind in any portion of its Technology or Intellectual Property Rights, or (ii) creating an obligation on the part of either Party to make any such grant, transfer or other conveyance.

ARTICLE 11 WARRANTIES

11.1 Miltenyi Product Warranty. Subject to Section 11.4 below, Miltenyi warrants and represents and covenants to Bellicum that Miltenyi Product Delivered hereunder will:

(1) be manufactured, tested and Devilvered by Miltenyi in accordance with all applicable marketing approvals (if any), Agreed Standards, the terms of this Agreement and other Applicable Laws applicable at the place of manufacture to the manufacture, testing, and Delivery of Miltenyi Products by Miltenyi;

(2) conform to Product Specifications at the time of Delivery;

(3) meet quality and purity characteristics that Miltenyi purports or represents that such Miltenyi Product possesses through its assigned expiry date (shelf life);

(4) be supplied under a quality system in accordance and compliance with the Quality Agreement,

(5) not be adulterated or mislabeled under Applicable Laws, and

(6) at the time of Delivery, be delivered with full title and be free and clear of any lien or encumbrance

(collectively, the "Miltenyi Product Warranty"). Bellicum's remedies and Miltenyi liability with respect to this Miltenyi Product Warranty are set forth in Section 7.6 and as otherwise expressly set forth in this Agreement.

11.2 Additional Miltenyi Representations, Warranties, and Covenants. Miltenyi further represents and warrants and covenants to Bellicum that:

(1) Miltenyi and its Affiliates and Subcontractors have the scientific, technical and other requisite competencies, and full right and power to perform the obligations set forth in this Agreement, and Miltenyi covenants that during the Term of this Agreement it will not enter into any obligation owed to a Third Party that would materially impair Miltenyi's ability to perform its obligations under this Agreement (including Miltenyi's obligation to supply Miltenyi Products to Bellicum);

(2) To Miltenyi's knowledge and after due inquiry, on the Effective Date, Miltenyi owns all right, title, and interest in and to, or otherwise possesses all necessary rights and licenses under, the Miltenyi Technology and the Miltenyi Intellectual Property Rights, to perform its obligations under this Agreement;

(3) As of the Effective Date, Miltenyi has not received any written communication from any Third Party alleging that the manufacture, use, sale, offer for sale or import of any Miltenyi Product infringes any Third Party patent or misappropriates any other Third Party Intellectual Property Rights; and

(4) To Miltenyi's knowledge on the Effective Date, except with respect to the agreements listed on Exhibit D hereto there are no agreements between Miltenyi and a Third Party that would impose any payment obligation on Bellicum with respect to the use of Miltenyi Product in connection with the manufacture, use or sale of any Bellicum Product, or any Bellicum use within the Permitted Use.

11.3 Bellicum Representations, Warranties, and Covenants. Bellicum represents, warrants and covenants to Miltenyi that:

(1) Bellicum has the scientific, technical and other requisite competencies to determine the suitability of each Miltenyi Product purchased hereunder for the use to which Bellicum will put such Miltenyi Product;

(2) As of the Effective Date, the Product Specifications are adequate to confirm the suitability of the Miltenyi Product (including its packaging and labelling) for the uses to which such Miltenyi Product will be put by Bellicum;

(3) Bellicum will perform, and will cause its Subcontractors and Licensees to perform, sufficient incoming inspection of each supplied Miltenyi Product to comply with its obligations under this Agreement and under all Applicable Laws; and

(4) Bellicum shall manufacture (and require and ensure that any Subcontractor or Licensee will manufacture) Bellicum Products using appropriate standards of care and quality in accordance with Applicable Laws and all requirements of Regulatory Authorities applicable to such manufacture; and

(5) Bellicum shall use, and will cause its Subcontractors and Licensees to use, Miltenyi Products in accordance with all Applicable Laws and all requirements of Regulatory Authorities applicable to such use.

11.4 Disclaimer.

(a) EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATIONS OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND EACH PARTY EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE OR USE, NON-INFRINGEMENT, VALIDITY AND ENFORCEABILITY OF PATENTS, OR THE PROSPECTS OR LIKELIHOOD OF DEVELOPMENT OR COMMERCIAL SUCCESS OF PRODUCT.

(b) Notwithstanding the generality of clause (a) above, Miltenyi hereby expressly disclaims any warranty that (i) the Miltenyi Products will be suitable for the development or manufacturing of a Bellicum Product, or (ii) Bellicum's intended use of the Miltenyi Products for the development or manufacturing of Bellicum Product will be approved by any Regulatory Authority, or (iii) the Miltenyi Products will otherwise be suitable in any respect for a Permitted Use or be commercially exploitable or profitable.

(c) In no event shall Miltenyi or its Affiliates be responsible or liable for any non-conformance or other defects in the Miltenyi Product(s), including any non-conformance with the warranties in Section 11.1 and 11.2, to the extent resulting from improper use, handling, storage, transportation, or disposal of the Miltenyi Product(s) after Delivery thereof (including without limitation failure to use the Miltenyi Product(s) in accordance with the terms of this Agreement or the Product Specifications), accident, or from any other cause not attributable to defective workmanship or failure to meet the Miltenyi Product Warranty on the part of Miltenyi or its Affiliates.

(d) Miltenyi's warranty under Section 11.2 does not relate to the potential uses of Miltenyi Products by Bellicum, its Subcontractors or Licensees in relation to Third Party rights, even if foreseeable. Bellicum acknowledges that there may be proprietary rights owned by Third Parties that may be necessary or desirable for the use of Miltenyi Products in connection with processes for the production and/or use of Bellicum Products, and Bellicum agrees that (i) securing access to such Third Party rights regarding such use of Miltenyi Products in the manufacture or use of a Bellicum Product is Bellicum's responsibility, and (ii) neither Miltenyi nor any of its Affiliates has any responsibility or liability with respect to any such Third Party proprietary rights regarding such use of Miltenyi Products in the manufacture or use of a Bellicum Product.

11.5 Remedies.

(a) Miltenyi's sole obligation, and Bellicum's sole and exclusive remedy for breach of the Miltenyi Product Warranty in Section 11.1, shall be as set forth in Article 7, including replacement or refund in accordance with Section 7.6, provided that Miltenyi shall pay reasonable return freight and shipping charges.

(b) In the event of breach of Miltenyi's warranties in Section 11.2 due to an actual or alleged infringement of a Third Party's Intellectual Property Rights due to Miltenyi's manufacture or sale, or Bellicum's import, export or use of any Miltenyi Product, Miltenyi shall at its option use [...***...] to either promptly and diligently negotiate a license from such Third Party at its own expense (including the payment due to the Third Party for such license) or modify the relevant Miltenyi Product(s) so that the supplied Miltenyi Product(s) are no longer infringing but have equivalent functionality. If Miltenyi fails to negotiate such license or modify the applicable Miltenyi Product, and to the extent Bellicum reasonably determines, following consultation with Miltenyi, that it is obligated to take a royalty-bearing license under any Third Party Intellectual Property Rights in order to avoid infringement of such Third Party Intellectual Property Rights with respect to the use of the applicable Miltenyi Product, then Bellicum shall have the right to offset any payment actually made to the Third Party for such license in any Contract Year against any Product Price payable to Miltenyi for the applicable Miltenyi Product in the same

Contract Year (on a Miltenyi Product-by-Miltenyi Product basis), under the proviso that Bellicum provides Miltenyi with reasonably satisfactory evidence of such Third Party royalties payment. The total amount of any reduction(s) pursuant to this Section 11.5(b) shall in no event exceed [...***...] percent ([...***...]%) of the Product Price payable for the applicable Miltenyi Product in that Contract Year (with the right to carry forward any unused offset).

(c) The foregoing shall be Bellicum's sole and exclusive remedy and Miltenyi's sole obligation with respect to claims that any Miltenyi Product fails to comply with the Miltenyi Product Warranty or the warranties in Section 11.2. Miltenyi will not in any event be liable for increased manufacturing costs, downtime costs, purchase of substitute products, lost profits, revenue, or goodwill, or any other indirect incidental, special, or consequential damages caused by a breach of the Miltenyi Product Warranty or the warranties in Section 11.2.

ARTICLE 12 LIMITATION OF LIABILITY

12.1 Limitation of Liability. Except for liability for (i) breach of the confidentiality obligations described in Article 14, (ii) misappropriation or infringement by a Party of the other Party's Intellectual Property Rights, or (iii) gross negligence or willful misconduct:

(a) IN NO EVENT SHALL A PARTY BE LIABLE FOR ANY PUNITIVE, EXEMPLARY, INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR EXPENSES, INCLUDING LOSS OF PROFITS, REVENUE, DATA, OR USE, WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING ERRORS OR OMISSIONS OR BREACH OF WARRANTY), EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES;

(b) EACH PARTY'S MAXIMUM LIABILITY FOR ANY DAMAGES FOR BREACH OF THIS AGREEMENT SHALL BE LIMITED TO DIRECT AND ACTUAL DAMAGES. IN NO ONE EVENT SHALL EITHER PARTY'S AGGREGATE LIABILITY FOR DAMAGES OR LOSSES UNDER THIS AGREEMENT EXCEED THE AGGREGATE AMOUNT OF THE PRODUCT PRICES PAID BY BELLICUM FOR THE MILTENYI PRODUCT(S) DURING THE TWELVE (12) MONTH PERIOD IMMEDIATELY PRECEDING THE EVENT GIVING RISE TO SUCH LIABILITY; AND FURTHER PROVIDED THAT SUCH AGGREGATE LIABILITY DURING SUCH PERIOD ALSO SHALL NOT EXCEED THE AMOUNT OF SUCH PARTY'S INSURANCE COVERAGE FOR SUCH AGGREGATE LIABILITY.

12.2 No Liability for Clinical Trials. Bellicum shall have sole responsibility that any Bellicum Product is safe for human use, and Bellicum hereby assumes sole risk and liability arising out of or in connection with the use of Bellicum Products in clinical trials by or on behalf of Bellicum or commercialization of Bellicum Products (including product liability with respect thereto).

ARTICLE 13 INDEMNIFICATION; INSURANCE

13.1 Indemnification by Miltenyi. Miltenyi will save, defend and hold harmless Bellicum, its Licensees and Subcontractors and their respective officers, directors, employees, consultants and agents (collectively, "Bellicum Indemnitees") from and against any and all liability, damage, loss or expense (collectively, "Losses") to which any such Bellicum Indemnitee may become subject as a result of any claim, demand, action or other proceeding by any Third Party to the extent such Losses arise out of: (i) the material breach by Miltenyi of any representation, warranty, covenant or agreement made by it under this Agreement; or (ii) the gross negligence or willful misconduct of any Miltenyi Indemnitee (as defined below); except, in each case, to the extent that such Losses result from the material breach by Bellicum of any representation, warranty, covenant or agreement made by it under this Agreement or the gross negligence or willful misconduct of any Bellicum Indemnitee. In the event Bellicum seeks indemnification under this Section

13.1, Bellicum shall (a) notify Miltenyi in writing of such Third Party claim as soon as reasonably practicable after it receives notice of the claim, (b) provided that Miltenyi is not contesting the indemnity obligation, permit Miltenyi to assume direction and control of the defense of the claim (including the right to settle the claim solely for monetary consideration), provided further that Miltenyi shall act reasonably and in good faith with respect to all matters relating to the settlement or disposition of any claim as the settlement or disposition relates to parties being indemnified under this Section 13.1, and (c) cooperate as requested (at Miltenyi's expense) in the defense of the claim; but provided always that Miltenyi may not settle any such claim or otherwise consent to an adverse judgment or order in any relevant action or other proceeding or make any admission as to liability or fault without the prior express written permission of an authorized representative of Bellicum.

13.2 Indemnification by Bellicum. Bellicum will save, defend and hold harmless Miltenyi, its Affiliates, Subcontractors, officers, directors, employees, consultants and agents (collectively, "Miltenyi Indemnitees") from and against any and all Losses to which any such Miltenyi Indemnitee may become subject as a result of any claim, demand, action or other proceeding by any Third Party to the extent such Losses arise out of: (i) the material breach by Bellicum of any representation, warranty, covenant or agreement made by it under this Agreement; (ii) the gross negligence or willful misconduct of any Bellicum Indemnitee (as defined above); or (iii) the development, manufacture, use, handling, storage, sale or other disposition of any Bellicum Product by or on behalf of Bellicum; except, in each case, to the extent such Losses result from the material breach by Miltenyi of any representation, warranty, covenant or agreement made by it under this Agreement or the gross negligence or willful misconduct of any Miltenyi Indemnitee. In the event Miltenyi seeks indemnification under this Section 13.2, Miltenyi shall (a) notify Bellicum in writing of such Third Party claim as soon as reasonably practicable after it receives notice of the claim, (b) provided that Bellicum is not contesting the indemnity obligation, permit Bellicum to assume direction and control of the defense of the claim (including the right to settle the claim solely for monetary consideration), provided further that Bellicum shall act reasonably and in good faith with respect to all matters relating to the settlement or disposition of any claim as the settlement or disposition relates to parties being indemnified under this Section 13.2, and (c) cooperate as requested (at Bellicum's expense) in the defense of the claim; but provided always that Bellicum may not settle any such claim or otherwise consent to an adverse judgment or order in any relevant action or other proceeding or make any admission as to liability or fault without the prior express written permission of Miltenyi.

13.3 Survival of Indemnification Obligations. The provisions of this Article 13 shall survive the expiration or termination of this Agreement for any reason whatsoever.

13.4 Insurance. Each Party will maintain at its sole cost and expense, an adequate amount of commercial general liability and product liability insurance throughout the Term and for a period of five (5) years thereafter, to protect against potential liabilities and risk arising out of products supplied or activities to be performed under this Agreement and any Quality Agreement related hereto upon such terms (including coverages, deductible limits and self-insured retentions) as are customary in the industry for the products supplied or activities to be conducted by such Party under this Agreement. Subject to the preceding sentence, such Bellicum liability insurance or self-insurance program will insure against personal injury, physical injury or property damage arising out of the pre-clinical, clinical and commercial manufacture, sale, use, distribution or marketing of Bellicum Product, and such Miltenyi liability insurance or self-insurance program will insure against personal injury, physical injury or property damage arising out of use of a Miltenyi Product in the manufacture of a Bellicum Product. In addition, from time to time during the Term, each Party shall increase their levels of insurance coverage if reasonably deemed prudent by such Party in light of the overall products supplied and/or activities performed under this Agreement. Each Party shall provide the other Party with written proof of the existence of such insurance upon reasonable written request.

ARTICLE 14 CONFIDENTIALITY

14.1 Definition. As used in this Agreement, the term "Confidential Information" means any information disclosed by one Party (the "Disclosing Party") to the other Party (the "Receiving Party") pursuant to this Agreement which is (a) in written, graphic, machine readable or other tangible form and is marked "Confidential", "Proprietary" or in some other manner to indicate its confidential nature, or (b) oral information disclosed pursuant to this Agreement, provided that such information is designated as confidential at the time of disclosure and reduced to a written summary by the Disclosing Party, within thirty (30) calendar days after its oral disclosure, which is marked in a manner to indicate its confidential nature and delivered to the Receiving Party. Notwithstanding the foregoing, the Disclosing Party's failure to so mark any of its Confidential Information, whether disclosed in written, graphic, machine readable or other tangible form, or its failure to designate as confidential and reduce to writing any Confidential Information disclosed orally, shall not relieve the Receiving Party of its obligations hereunder with respect to such Confidential Information if its confidential nature would be apparent to a reasonable person in the biotechnology or biopharmaceutical industry, based on the subject matter of such Confidential Information or the circumstances under which it is disclosed.

14.2 Non-Disclosure and Non-Use. During the Term and for five (5) years thereafter, each of Miltenyi and Bellicum shall keep Confidential Information of the other Party in strict confidence and shall not (i) use the other Party's Confidential Information for any use or purpose except as expressly permitted under this Agreement, the Quality Agreement or as otherwise authorized in writing in advance by the other Party, or (ii) disclose the other Party's Confidential Information to anyone other than those of its Affiliates, Subcontractors, directors, officers, employees, agents, contractors, collaborators and consultants, and in the case of Bellicum, its Licensees (collectively, "Authorized Representatives") who need to know such Confidential Information for a use or purpose expressly permitted under this Agreement. Each Receiving Party shall take reasonable measures to protect the secrecy of and avoid disclosure and unauthorized use of the Confidential Information of the Disclosing Party. Without limiting the foregoing, each Receiving Party shall take at least those measures that it takes to protect its own confidential information of a similar nature (but not less than reasonable measures) and shall ensure that any Authorized Representative of the Receiving Party who is permitted access to Confidential Information of the Disclosing Party pursuant to clause (ii) in the first sentence of this Section 14.2 is contractually or legally bound by obligations of non-disclosure and non-use in scope and content at least as protective of the Disclosing Party's Confidential Information as the provisions hereof prior to any disclosure of the Disclosing Party's Confidential Information to such Authorized Representative. The Receiving Party shall be responsible for any breach of this Agreement by its Authorized Representatives.

14.3 Exceptions. Notwithstanding the above, a Receiving Party shall have no obligations under this Article 14 with regard to any information of the Disclosing Party which the Receiving Party can demonstrate through competent proof: (a) was generally known and available in the public domain at the time it was disclosed to the Receiving Party or becomes generally known and available in the public domain through no act or omission of the Receiving Party or its Authorized Representatives; (b) can be documented as previously known by the Receiving Party prior to disclosure thereof by the Disclosing Party; (c) is disclosed with the prior written approval of the Disclosing Party; (d) was independently developed by the Receiving Party without any use of the Disclosing Party's Confidential Information; or (e) becomes known to the Receiving Party on a non-confidential basis from a source other than the Disclosing Party without breach of this Agreement by the Receiving Party; provided (i) only the specific information that meets the exclusions shall be excluded, and not any other information that happens to appear in proximity to such excluded portions (for example, a portion of a document may be excluded without affecting the confidential nature of those portions that do not themselves qualify for exclusion) or that happens to be disclosed at the same time or in connection therewith; and (ii) specific Confidential Information shall not be deemed to be known, disclosed, in the public domain nor in Receiving Party's possession merely because of broader or related information being known, disclosed, in the public domain or in Receiving Party's possession, nor

shall combinations of elements or principles be considered to be known, disclosed, in the public domain nor in Receiving Party's possession merely because individual elements thereof are known, disclosed, in the public domain or in Receiving Party's possession.

14.4 Permitted Disclosure.

(a) Compelled Disclosure. Notwithstanding the provisions of this Article 14, nothing in this Agreement shall prevent the Receiving Party from disclosing Confidential Information of the Disclosing Party to the extent the Receiving Party is legally required or compelled to do so by any governmental investigative or judicial agency or body pursuant to proceedings over which such agency or body has jurisdiction; provided, however, that prior to making any such required or compelled disclosure, the Receiving Party shall: (i) assert the confidential nature of the Confidential Information to such agency or body; (ii) promptly notify the Disclosing Party in writing of such order or requirement to disclose; and (iii) cooperate fully with the Disclosing Party in protecting against or limiting any such disclosure and/or obtaining a protective order, confidential treatment and/or any other remedy narrowing the scope of the required or compelled disclosure and protecting its confidentiality. In the event that a protective order, confidential treatment and/or other remedy is not obtained, or if the Disclosing Party waives compliance with the provisions of this Agreement as applied to such required or compelled disclosure, then the Receiving Party may, without liability, disclose the Disclosing Party's Confidential Information to the extent that it is legally required or compelled to disclose. The Receiving Party will furnish only that portion of the Disclosing Party's Confidential Information that is legally required to disclose and will make all reasonable and diligent efforts to obtain reliable assurances that confidential treatment will be afforded to Confidential Information so disclosed. Disclosure of Confidential Information pursuant to this Section 14.4(a) shall not alter the character of that information as Confidential Information hereunder.

(b) Authorized Disclosure. Notwithstanding the provisions of this Article 14, each Party may disclose the terms of this Agreement (i) in connection with the requirements of an initial public offering or securities filing; (ii) in confidence, to accountants, attorneys, other professional advisors, banks, and financing sources and their advisors; (iii) in confidence, in connection with the enforcement of this Agreement or rights under this Agreement; or (iv) in confidence, in connection with a merger or acquisition or proposed merger or acquisition, or a sale or proposed sale of its assets or business, or the like.

14.5 Publicity. Each Party may disclose the existence of this Agreement, but agrees that the terms and conditions of this Agreement will be treated as Confidential Information of the other Party. Except as otherwise required by Applicable Laws or regulations, neither Party shall make any public announcement or press release regarding this Agreement or any terms thereof, or otherwise use the name, logos, trademarks or products of the other Party in any publication, without the other Party's express prior written consent.

14.6 Remedies. The Parties acknowledge and agree that the provisions of this Article 14 are necessary for the protection of the business and goodwill of the Parties and are considered by the Parties to be reasonable for such purpose. Each Party agrees that any violation of this Article 14 by it or its Affiliate, or Subcontractors may cause substantial and irreparable harm to the other Party and, therefore, in the event of any violation or threatened violation of this Article 14 by the Receiving Party, the Disclosing Party shall be entitled to seek specific performance and other injunctive and equitable relief in addition to any other legal remedies available.

ARTICLE 15 TERM AND TERMINATION

15.1 Term. This Agreement shall enter into force on the Effective Date. The Agreement shall have an initial term of ten (10) years commencing from the Effective Date and ending on the tenth (10th) anniversary thereof (the "Initial Term"), unless earlier terminated by either Party in accordance with the provisions of Section 15.2 or Section 15.3. Thereafter, Bellicum shall have consecutive separate options to extend the Term for successive renewal terms of five (5) years each (each, a "Renewal Term", and

collectively with the Initial Term, the "Term"). Provided Bellicum is not then in default with its material obligations hereunder, Bellicum may exercise each such renewal option by giving written notice to Miltenyi not later than six (6) months prior to the expiration of the current Term.

15.2 Termination for Cause. Notwithstanding Section 15.1 either Party may, in addition to any other remedies available to it under this Agreement or by law, terminate this Agreement or any particular Module as follows:

(a) Termination for Material Breach. A Party may terminate this Agreement or a particular Module by providing written notice to the other Party describing the other Party's material breach and demanding its cure, in the event that the other Party materially breaches a material provision of this Agreement or such Module and fails to cure such breach within thirty (30) days of receipt of such notice of the breach or, if the breach is not susceptible to cure within such thirty (30) day period, if the breaching Party fails to submit to the notifying Party and implement within such thirty (30) day period a written remedial action plan reasonably satisfactory to the notifying Party that sets out appropriate corrective action for remedying such breach promptly after such 30-day period expires.

(b) Termination for Bankruptcy or Insolvency. A Party may terminate this Agreement upon thirty (30) days' written notice to the other Party in the event the other Party shall have become insolvent or bankrupt, or shall have made an assignment for the benefit of its creditors, or there shall have been appointed a trustee or receiver of the other Party, or if any case or proceeding shall have been commenced or other action taken by or against the other Party in bankruptcy or seeking reorganization, liquidation, dissolution, winding-up, arrangement, composition or readjustment of its debts or any relief under any bankruptcy, insolvency, reorganization or other similar act or law of any jurisdiction now or hereinafter in effect that is not dismissed within thirty (30) days after commencement.

(c) Termination for Force Majeure. A Party may terminate this Agreement or a particular Module upon providing written notice to the other Party if the other Party is affected by a Force Majeure event which cannot be removed, overcome or abated within three (3) continuous months (or within such other period as the Parties jointly shall agree in writing) from the initial date of such Force Majeure event.

15.3 Discontinuance or Suspension of Bellicum Product Program or Without Cause Termination. Bellicum may terminate this Agreement or a particular Module upon ninety (90) days written notice to Miltenyi: 1) if Bellicum, in its sole and absolute discretion, discontinues or indefinitely suspends the development and/or commercialization of the Bellicum Product(s) or 2) without cause for any reason or no reason. Upon the termination of this Agreement or such Module pursuant to this Section 15.3, Bellicum's sole obligation shall be for it to make payment of all undisputed and properly due amounts payable for Miltenyi Product ordered prior to the effective date of such termination of each terminated Module, including any Purchase Order to be made by Bellicum in connection with Bellicum's then-outstanding obligation to purchase quantities of Miltenyi Product forecasted with respect to an applicable Firm Zone. For clarity, termination of this Agreement or any Module pursuant to this Section 15.3 shall not release Bellicum from its payment obligations with respect to the quantities set forth in any Purchase Orders or quantities forecasted for any Firm Zone.

15.4 Expiration or termination of this Agreement or a particular Module for any reason shall not release either Party from liability accrued under this Agreement or such Module, respectively, prior to such expiration or termination, nor preclude either Party from pursuing any rights or remedies accrued prior to such expiration or termination or accrued at law or in equity with respect to any uncured material breach of this Agreement or such Module.

15.5 The termination of this Agreement or a particular Module shall not operate to relieve Bellicum from its obligation to pay undisputed and properly due amounts of (a) the Product Price of all

quantities of Miltenyi Products (i) delivered in accordance with this Agreement, such Module(s) and the applicable Quality Agreement up to the effective date of termination and (ii) to be delivered under outstanding Purchase Orders accepted by Miltenyi prior to the date of notice of termination (including the Ordered Quantities) or (iii) forecasted for any Firm Zone in the most recent applicable Monthly Forecast; (b) any Upfront Fee payable under Section 8.1 and any earned Milestone Fee payable under Section 8.2 hereof; and (c) all other undisputed and properly due fees and/or expenses owed to Miltenyi in accordance with this Agreement, such Module(s) and the applicable Quality Agreement prior to the date of notice of termination; *provided*, *however*, that in the event of termination of this Agreement or such Module(s) by Bellicum pursuant to Section 15.2 (Termination for Cause), Bellicum shall not be responsible for payments relating to any portion of the Forecast applicable to any period after the effective date of termination. All amounts paid under Sections 8.1 through 8.3 shall be non-refundable once paid.

15.6 Post Termination. Upon the termination or expiry of this Agreement, each Party shall promptly return to the other Party or destroy, at the other Party's request,

(a) any and all Confidential Information of the other Party then in its possession or control, except if such information is covered under surviving license rights, and further provided that each Party may keep one (1) copy of such information in its legal archives for regulatory compliance purposes and in order to determine its ongoing obligations hereunder, including in connection with legal proceedings; and such additional copies of or any computer records or files containing such Confidential Information that have been created solely by the Receiving Party’s automatic archiving and back-up procedures, to the extent created and retained in a manner consistent with the Receiving Party’s standard archiving and back-up procedures, but not for any other use or purpose; and

(b) any and all remaining materials and capital equipment of the other Party then in its possession or control.

15.7 Survival. Other than obligations which have accrued and are outstanding as of the date of any expiration or termination of this Agreement, and except as otherwise expressly provided in this Agreement or the Quality Agreement or as otherwise mutually agreed by the Parties in writing, all rights granted and obligations undertaken by the Parties hereunder shall terminate immediately upon the termination or expiration of this Agreement, subject to Section 15.4 above and except for the following which shall survive according to their terms: Section 2.2 (Permitted Use); Section 2.7 (Subcontracting by Bellicum); Article 10 (Intellectual Property); Article 11 (Warranty); Article 12 (Limitation of Liability); Article 13 (Indemnification; Insurance); Article 14 (Confidentiality and Non-disclosure); Section 15.7 (Post-termination); Section 15.7 (Survival); Article 16 (Notices); Article 17 (Assignment); Article 19 (Dispute Resolution and Applicable Law); and Article 20 (Miscellaneous); and any and all rights and obligations of the Parties thereunder, as well as any other provision hereunder which by its nature is intended to survive expiration or termination of this Agreement.

ARTICLE 16 NOTICES.

All notices, demands, requests, consents, approval and other communications required or permitted to be given under this Agreement shall be in writing and will be delivered personally, or mailed by registered or certified mail, return receipt requested, postage prepaid, or sent by reputable overnight courier service, confirmed by mailing as described above at the address set forth below or to such other address as any Party may give to the other Party in writing for such purpose in accordance with this Article 16:

If to Miltenyi:

Miltenyi Biotec GmbH
Friedrich-Ebert-Str. 68
51429 Bergisch Gladbach
Germany
Attn: Managing Director
Fax: [...***...]

With copy to (for legal matters):

Miltenyi Biotec GmbH
Friedrich-Ebert-Str. 68
51429 Bergisch Gladbach
Germany
Attn: General Counsel
Fax: [...***...]

If to Bellicum

Bellicum Pharmaceuticals, Inc.
Life Science Plaza
2130 West Holcombe Boulevard, Suite 800
Houston, Texas 77030
Attn: Chief Business Officer
Fax: [...***...]

With a copy to (for legal matters):

Bellicum Pharmaceuticals, Inc.
Life Science Plaza
2130 West Holcombe Boulevard, Suite 800
Houston, Texas 77030
Attn: General Counsel
Fax: [...***...]

All such communications, if personally delivered on a Business Day, will be conclusively deemed to have been received by a Party hereto and to be effective when so delivered, or if sent by overnight courier service on the earlier of the Business Day when confirmation of delivery is provided by such service or when actually received by such Party, or if sent by certified or registered mail on the third Business Day after the Business Day on which deposited in the mail. Each Party will use [...***...] to provide additional notice by email but the failure to provide such notice will not affect the validity of any such notice. Either Party may change its address by giving the other notice thereof in the manner provided herein.

ARTICLE 17 ASSIGNMENT

17.1 This Agreement shall not be assignable, pledged or otherwise transferred, nor may any right or obligations hereunder be assigned, pledged or transferred, by either Party to any Third Party without the prior written consent of the other Party, which consent, in the event of a financing transaction by the Party asking for consent, shall not be unreasonably withheld, conditioned or delayed by the other Party; except either Party may assign or otherwise transfer this Agreement without the consent of the other Party to an entity that acquires all or substantially all of the business or assets of the assigning Party relating to the subject matter of this Agreement, whether by merger, acquisition or otherwise; provided that intellectual property rights that are owned or held by the acquiring entity or person to such transaction (if other than one of the Parties to this Agreement) shall not be included in the technology licensed hereunder. In addition, either Party shall have the right to assign or otherwise transfer this Agreement to an Affiliate upon written notice to the non-assigning Party; provided, however, the assigning or transferring Party shall continue to remain liable

for the performance of this Agreement by such Affiliate. Upon any such assignment, all of the terms and provisions of this Agreement binding upon, or inuring to the benefit of, the assigning Party shall be binding on, and inure to the benefit of, its assignee, whether so expressed in the assignment or not. Nothing herein shall be deemed to prohibit Miltenyi or any of its Affiliates from granting a security interest in this Agreement and any rights hereunder to any Third Party in connection with any financing transaction to the extent provided under (and subject to the restrictions on the rights of secured parties contained in) Applicable Laws. In addition, Miltenyi or any Affiliate of Miltenyi shall have the right to sell, assign, pledge or otherwise transfer any accounts and payment intangibles in connection with any financing transaction. Subject to the foregoing, this Agreement shall inure to the benefit of each Party, its successors and permitted assigns. Any assignment of this Agreement in contravention of this Article 17 shall be null and void.

ARTICLE 18 FORCE MAJEURE

18.1 Neither Party will be liable to the other Party on account of any loss or damage resulting from any delay or failure to perform all or any part of this Agreement if such delay or failure is caused, in whole or in part, by events, occurrences, or causes beyond the reasonable control and without negligence of the Parties ("Force Majeure Event"). Such events, occurrences, or causes will include acts of God, strikes, lockouts, acts of war, riots, civil commotion, terrorist acts, epidemic, failure or default of public utilities or common carriers, destruction of facilities or materials by fire, explosion, earthquake, storm or the like catastrophe, and failure of plant or machinery (provided that such failure could not have been prevented by the exercise of skill, diligence and prudence that would be reasonably and ordinarily expected from a skilled and experienced person engaged in the same type of undertaking under the same or similar circumstances), but the inability to meet financial obligations is expressly excluded.

18.2 The Party affected by a Force Majeure Event shall inform promptly the other Party in writing of the Force Majeure Event's occurrence, anticipated duration and cessation. The Party giving such notice shall thereupon be excused from such of its obligations hereunder as it is thereby disabled from performing for so long as it is so disabled, provided, however, that such affected Party commences and continues to take reasonable and diligent actions to cure such cause.

ARTICLE 19 APPLICABLE LAWS; JURISDICTION

19.1 Governing Law. This Agreement shall be governed in all respects by, and construed and enforced in accordance with, the laws of the State of New York, USA, without regard to the conflict of law provisions thereof or the United Nations Convention on Contracts for the International Sale of Goods; provided, however, that any dispute relating to the scope, validity, enforceability or infringement of any Intellectual Property Right will be governed by, and construed and enforced in accordance with, the substantive laws of the jurisdiction in which such Intellectual Property Right applies.

19.2 Dispute Resolution Procedures. Should any dispute, claim or controversy arise between the Parties relating to the validity, interpretation, existence, performance, termination or breach of this Agreement (collectively, a "Dispute"), the Parties shall use their best efforts to resolve the Dispute by good faith negotiations, first between their respective representatives directly involved in that Dispute and the Alliance Managers for a period of thirty (30) days, and then, if necessary, between vice presidents of the Parties for an additional fifteen (15) days, and then, if necessary, between Chief Executive Officers of the Parties for an additional five (5) Business Days. Any such Dispute not satisfactorily settled by negotiation in accordance with the foregoing process, either Party may submit such Dispute to a court of competent jurisdiction in accordance with subsection (a) below; provided that nothing in this Section 19.2 will preclude either Party from seeking injunctive relief in any court of competent jurisdiction in accordance with Section (a) below.

(a) Submission to Jurisdiction; Waiver of Venue. Each Party hereto agrees that any action, proceeding or claim it commences against the other Party pursuant to this Agreement shall be brought

in the courts of the United States for the Southern District of New York, and any appellate court from any thereof, in any action or proceeding arising out of or relating to this Agreement, or for recognition or enforcement of any judgment. Each Party hereby irrevocably and unconditionally submits to the jurisdiction of the State of New York Courts and irrevocably and unconditionally waives, to the fullest extent permitted by law, any objection which it may now or hereafter have to the laying of the venue of any such suit, action or proceeding brought in any such court, any claim that any such suit, action or proceeding brought in such a court has been brought in an inconvenient forum and the right to object, with respect to any such suit, action or proceeding brought in any such court, that such court does not have jurisdiction over such Party. Each Party agrees that a final non-appealable judgment in any such suit, action or proceeding in such a court shall be conclusive and binding and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by Applicable Law.

(b) Waiver of Jury Trial. Due to the high costs and time involved in commercial litigation before a jury, THE PARTIES HEREBY WAIVE ALL RIGHT TO A JURY TRIAL WITH RESPECT TO ANY AND ALL ISSUES IN ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATED TO THIS AGREEMENT.

19.3 Injunctive Relief. Each Party acknowledges that its breach of its obligations under this Agreement may result in immediate and irreparable harm to the other Party, for which there may be no adequate remedy at law. Therefore, in the event of a breach or threatened breach, the non-breaching Party may, in addition to other remedies, immediately seek from any court of competent jurisdiction injunctive relief (including a temporary restraining order, preliminary injunction or other interim equitable relief) prohibiting the breach or threatened breach or compelling specific performance, without the necessity of proving actual damages. Such right to injunctive relief as provided for in this paragraph is in addition to, and is not in limitation of, whatever remedies either Party may be entitled to as a matter of law or equity, including money damages. The Parties agree to waive the requirement of posting a bond in connection with a court's issuance of an injunction.

ARTICLE 20 MISCELLANEOUS

20.1 Governing Further Actions. Each Party will execute, acknowledge and deliver such further instruments, and do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of the Agreement.

20.2 Independent Contractors. The relationship between Miltenyi and Bellicum created by this Agreement is one of independent contractors. Neither Party shall have the power or authority to bind or obligate the other Party, or purport to take on any obligation or responsibility, or make any representations, warranties, guarantees or endorsements to anyone, on behalf of the other Party, except as expressly permitted in this Agreement.

20.3 Entire Agreement and Amendment. This Agreement (including all Exhibits attached hereto, which are incorporated herein by reference, and as amended from time to time in accordance with the provisions hereof) and any Quality Agreement(s) sets forth all of the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties hereto with respect to the subject matter hereof, and constitutes and contains the complete, final, and exclusive understanding and agreement of the Parties with respect to the subject matter hereof, and cancels, supersedes and terminates all prior agreements and understanding between the Parties with respect to the subject matter hereof. There are no covenants, promises, agreements, warranties, representations conditions or understandings, whether oral or written, between the Parties other than as set forth herein or in a Quality Agreement. No subsequent alteration, amendment, change or addition to this Agreement (including all Exhibits attached hereto) shall be binding upon the Parties hereto unless reduced to writing and signed by the respective authorized officers of the Parties.

20.4 Severability and Headings. If any term, condition or provision of this Agreement is held to be invalid, unlawful or unenforceable to any extent by a court of competent jurisdiction, then the Parties will negotiate in good faith a substitute, valid and enforceable provision that most nearly effects the Parties' intent and the Parties agree to be bound by the mutually agreed substitute provision. If the Parties fail to agree on such an amendment, such invalid term, condition or provision will be severed from the remaining terms, conditions and provisions, which will continue to be valid and enforceable to the fullest extent permitted by law. Headings used in this Agreement are provided for convenience only, and shall not in any way affect the meaning or interpretation of this Agreement.

20.5 No Waiver. Any waiver of the provisions of this Agreement or of a Party's rights or remedies under this Agreement must be in writing to be effective. Failure, neglect or delay by a Party to enforce the provisions of this Agreement or its rights or remedies at any time, will not be construed as a waiver of such Party's rights under this Agreement and will not in any way affect the validity of the whole or any part of this Agreement or prejudice such Party's right to take subsequent action. No exercise or enforcement by either Party of any right or remedy under this Agreement will preclude the enforcement by such Party of any other right or remedy under this Agreement or that such Party is entitled by law to enforce.

20.6 Negotiated Terms. The Parties agree that the terms and conditions of this Agreement are the result of negotiations between the Parties and that this Agreement shall not be construed in favor of or against any Party by reason of the extent to which any Party or its professional advisors participated in the preparation of this Agreement.

20.7 Counterparts. This Agreement may be executed in any number of counterparts, each of which need not contain the signature of more than one Party but all such counterparts taken together shall constitute one and the same agreement, and may be executed through exchange of original signatures or electronic copies (PDF).

[Remainder of this page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, the Parties, having read the terms of this Agreement and intending to be legally bound thereby, do hereby execute this Agreement.

MILTENYI BIOTEC GMBH

By: */s/ Stefan Miltenyi*

Name: Stefan Miltenyi

Title: CEO and Founder

BELLICUM PHARMACEUTICALS, INC.

By: */s/ Rick Fair*

Name: Rick Fair

Title: CEO

List of EXHIBITS

EXHIBIT B List of Miltenyi Products

[...***...]

EXHIBIT C: Forecast Format

[...***...]

EXHIBIT D [...*...] Sublicense Royalties and/or Licensee Fees**

Miltenyi has entered into a license agreement with [...***...] ("[...***...]"), having a place of business at [...***...], to obtain certain rights regarding the patent family [...***...] ("[...***...] License Agreement").

Within the scope of the [...***...] License Agreement, Miltenyi has got the right to grant non-exclusive sublicenses to third parties utilizing cytokines for applications that are covered by the claims of [...***...] to develop, manufacture, market and commercialize medicinal products on terms and conditions consistent with the terms and conditions contained in the [...***...] License Agreement. Upon Bellicum's determination that a given Bellicum product falls within the licence agreement, Bellicum will notify Miltenyi of such determination.

Subject to the provisions of this Agreement, Miltenyi is willing to grant to Bellicum a non-exclusive sublicense to its rights obtained under the [...***...] License Agreement in the form of a separate agreement between Miltenyi and Bellicum, under such separate sublicense agreement Bellicum would agree to hold harmless and reimburse Miltenyi for the fees that are due to [...***...] based on Bellicum's use of the sublicense rights for Bellicum Products ("[...***...] Sublicense Agreement").

EXHIBIT E Country Specific Product List Prices* (Year 2019)

[...***...]

EXHIBIT F Discounts

Table 1 of Exhibit F: Discount Scheme for Miltenyi Products, forecasted to be purchased by Bellicum under the Supply Agreement

[...***...]

For Discount Scale Definition, see Table 2 of Exhibit F, below.

Table 2 of Exhibit F: Discount Scale Definitions

[...***...]

EXHIBIT G Miltenyi Competitor

[...***...].

BELLICUM PHARMACEUTICALS, INC.

2014 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: DECEMBER 4, 2014
APPROVED BY THE STOCKHOLDERS: DECEMBER 5, 2014
AMENDED AND APPROVED BY THE BOARD: JANUARY 24, 2017
AMENDED AND APPROVED BY THE BOARD OF DIRECTORS: APRIL 26, 2017
APPROVED BY THE STOCKHOLDERS: JUNE 14, 2017
AMENDED AND APPROVED BY THE BOARD OF DIRECTORS: JULY 31, 2017
AMENDED AND APPROVED BY THE BOARD OF DIRECTORS: JANUARY 17, 2018
AMENDED AND APPROVED BY THE BOARD OF DIRECTORS: MAY 7, 2018
AMENDED AND APPROVED BY THE BOARD OF DIRECTORS: NOVEMBER 19, 2018
AMENDED AND APPROVED BY THE BOARD OF DIRECTORS: APRIL 23, 2019
IPO DATE: DECEMBER 17, 2014

1. **GENERAL.**

(a) Successor to and Continuation of Prior Plan. The Plan is intended as the successor to and continuation of the Bellicum Pharmaceuticals, Inc. 2011 Stock Option Plan, as amended (the "***2011 Plan***"). From and after 12:01 a.m. Pacific time on the IPO Date, no additional stock awards will be granted under the 2011 Plan. All Awards granted on or after 12:01 a.m. Pacific Time on the IPO Date will be granted under this Plan. All stock awards granted under the 2011 Plan or under the Bellicum Pharmaceuticals, Inc. 2006 Stock Option Plan, as amended (together with the 2011 Plan, the "***Prior Plans***"), will remain subject to the terms of the Prior Plans.

(i) Any shares that would otherwise remain available for future grants under the 2011 Plan as of 12:01 a.m. Pacific Time on the IPO Date (the "***2011 Plan's Available Reserve***") will cease to be available under the 2011 Plan at such time. Instead, that number of shares of Common Stock equal to the 2011 Plan's Available Reserve will be added to the Share Reserve (as further described in Section 3(a) below) and will be immediately available for grants and issuance pursuant to Stock Awards hereunder, up to the maximum number set forth in Section 3(a) below.

(ii) In addition, from and after 12:01 a.m. Pacific time on the IPO Date, any shares subject, at such time, to outstanding stock awards granted under the Prior Plans that (i) expire or terminate for any reason prior to exercise or settlement; (ii) are forfeited because of the failure to meet a contingency or condition required to vest such shares or otherwise return to the Company; or (iii) are reacquired, withheld (or not issued) to satisfy a tax withholding obligation in connection with an award or to satisfy the purchase price or exercise price of a stock award (such shares the "***Returning Shares***") will immediately be added to the Share Reserve (as further described in Section 3(a) below) as and when such shares become Returning Shares, up to the maximum number set forth in Section 3(a) below.

(iii) All share numbers set forth in the Plan give effect to the 1-for-1.7 reverse stock split of the Company's Common Stock effected prior to the IPO Date.

(b) Eligible Award Recipients. Employees, Directors and Consultants are eligible to receive Awards.

(c) Available Awards. The Plan provides for the grant of the following Awards: (i) Incentive Stock Options, (ii) Nonstatutory Stock Options, (iii) Stock Appreciation Rights, (iv) Restricted Stock Awards, (v) Restricted Stock Unit Awards, (vi) Performance Stock Awards, (vii) Performance Cash Awards, and (viii) Other Stock Awards.

(d) Purpose. The Plan, through the grant of Awards, is intended to help the Company secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate, and provide a means by which the eligible recipients may benefit from increases in value of the Common Stock.

2. ADMINISTRATION.

(a) Administration by Board. The Board will administer the Plan. The Board may delegate administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) Powers of Board. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine: (A) who will be granted Awards; (B) when and how each Award will be granted; (C) what type of Award will be granted; (D) the provisions of each Award (which need not be identical), including when a person will be permitted to exercise or otherwise receive cash or Common Stock under the Award; (E) the number of shares of Common Stock subject to, or the cash value of, an Award; and (F) the Fair Market Value applicable to a Stock Award.

(ii) To construe and interpret the Plan and Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan and Awards. The Board, in the exercise of these powers, may correct any defect, omission or inconsistency in the Plan or in any Award Agreement or in the written terms of a Performance Cash Award, in a manner and to the extent it will deem necessary or expedient to make the Plan or Award fully effective.

(iii) To settle all controversies regarding the Plan and Awards granted under it.

(iv) To accelerate, in whole or in part, the time at which an Award may be exercised or vest (or the time at which cash or shares of Common Stock may be issued in settlement thereof).

(v) To suspend or terminate the Plan at any time. Except as otherwise provided in the Plan or an Award Agreement, suspension or termination of the Plan will not materially impair a Participant’s rights under the Participant’s then-outstanding Award without the Participant’s written consent, except as provided in subsection (viii) below.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments relating to Incentive Stock Options and certain nonqualified deferred compensation under Section 409A of the Code and/or bringing the Plan or Awards granted under the Plan into compliance with the requirements for Incentive Stock Options or ensuring that they are exempt from, or compliant with, the requirements for nonqualified deferred compensation under Section 409A of the Code, subject to the limitations, if any, of applicable law. If required by applicable law or listing requirements, and except as provided in Section 9(a) relating to Capitalization Adjustments, the Company will seek stockholder approval of any amendment of the Plan that (A) materially increases the number of shares of Common Stock available for issuance under the Plan, (B) materially expands the class of individuals eligible to receive Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan, (D) materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, (E) materially extends the term of the Plan, or (F) materially expands the types of Awards available for issuance under the Plan. Except as otherwise provided in the Plan or an Award Agreement, no amendment of the Plan will materially impair a Participant's rights under an outstanding Award without the Participant's written consent.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of (A) Section 162(m) of the Code regarding the exclusion of performance-based compensation from the limit on corporate deductibility of compensation paid to Covered Employees, (B) Section 422 of the Code regarding "incentive stock options" or (C) Rule 16b-3.

(viii) To approve forms of Award Agreements for use under the Plan and to amend the terms of any one or more Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided, however,* that a Participant's rights under any Award will not be impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing. Notwithstanding the foregoing, (1) a Participant's rights will not be deemed to have been impaired by any such amendment if the Board, in its sole discretion, determines that the amendment, taken as a whole, does not materially impair the Participant's rights, and (2) subject to the limitations of applicable law, if any, the Board may amend the terms of any one or more Awards without the affected Participant's consent (A) to maintain the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code; (B) to change the terms of an Incentive Stock Option, if such change results in impairment of the Award solely because it impairs the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code; (C) to clarify the manner of exemption from, or to bring the Award into compliance with, Section 409A of the Code; or (D) to comply with other applicable laws or listing requirements.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Award Agreement that are required for compliance with the laws of the relevant foreign jurisdiction).

(c) Delegation to Committee.

(i) General. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee, as applicable). Any delegation of administrative powers will be reflected in resolutions, not inconsistent with the provisions of the Plan, adopted from time to time by the Board or Committee (as applicable). The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(ii) Section 162(m) and Rule 16b-3 Compliance. The Committee may consist solely of two or more Outside Directors, in accordance with Section 162(m) of the Code, or solely of two or more Non-Employee Directors, in accordance with Rule 16b-3.

(d) Delegation to an Officer. The Board may delegate to one (1) or more Officers the authority to do one or both of the following (i) designate Employees who are not Officers to be recipients of Options and SARs (and, to the extent permitted by applicable law, other Stock Awards) and, to the extent permitted by applicable law, the terms of such Awards, and (ii) determine the number of shares of Common Stock to be subject to such Stock Awards granted to such Employees; *provided, however*, that the Board resolutions regarding such delegation will specify the total number of shares of Common Stock that may be subject to the Stock Awards granted by such Officer and that such Officer may not grant a Stock Award to himself or herself. Any such Stock Awards will be granted on the form of Stock Award Agreement most recently approved for use by the Committee or the Board, unless otherwise provided in the resolutions approving the delegation authority. The Board may not delegate authority to an Officer who is acting solely in the capacity of an Officer (and not also as a Director) to determine the Fair Market Value pursuant to Section 13(w)(iii) below.

(e) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

(f) Cancellation and Re-Grant of Stock Awards. Neither the Board nor any Committee will have the authority to: (i) reduce the exercise price or strike price of any outstanding Options or Stock Appreciation Rights under the Plan, or (ii) cancel any outstanding Options or Stock Appreciation Rights that have an exercise price or strike price greater than the current Fair Market Value of the Common Stock in exchange for cash or other Stock Awards

under the Plan, unless the stockholders of the Company have approved such an action within twelve months prior to such an event.

3. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve. Subject to Section 9(a) relating to Capitalization Adjustments, and the following sentence regarding the annual increase, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards will not exceed 8,916,795 shares (the "***Share Reserve***"), which number is the sum of (i) 2,600,000 shares originally approved by the Company's stockholders in December 2014, (ii) 3,100,000 shares approved by the Company stockholders at the Company's Annual Meeting of Stockholders in June 2017, (iii) the number of shares subject to the 2011 Plan's Available Reserve, *plus* (iv) the number of shares that are Returning Shares, as such shares become available from time to time.

For clarity, the Share Reserve in this Section 3(a) is a limitation on the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards except as provided in Section 7(a). Shares may be issued in connection with a merger or acquisition as permitted by NASDAQ Listing Rule 5635(c) or, if applicable, NYSE Listed Company Manual Section 303A.08, AMEX Company Guide Section 711 or other applicable rule, and such issuance will not reduce the number of shares available for issuance under the Plan.

(b) Reversion of Shares to the Share Reserve. If a Stock Award or any portion thereof (i) expires or otherwise terminates without all of the shares covered by such Stock Award having been issued or (ii) is settled in cash (*i.e.*, the Participant receives cash rather than stock), such expiration, termination or settlement will not reduce (or otherwise offset) the number of shares of Common Stock that may be available for issuance under the Plan. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required to vest such shares in the Participant, then the shares that are forfeited or repurchased will revert to and again become available for issuance under the Plan. Any shares reacquired by the Company in satisfaction of tax withholding obligations on a Stock Award or as consideration for the exercise or purchase price of a Stock Award will again become available for issuance under the Plan.

(c) Incentive Stock Option Limit. Subject to the provisions of Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options will be 8,300,000 shares of Common Stock.

(d) Section 162(m) Limitations. Subject to the provisions of Section 9(a) relating to Capitalization Adjustments, at such time as the Company may be subject to the applicable provisions of Section 162(m) of the Code, the following limitations shall apply.

(i) A maximum of 1,000,000 shares of Common Stock subject to Options, SARs and Other Stock Awards whose value is determined by reference to an increase over an exercise or strike price of at least 100% of the Fair Market Value on the date the Stock Award is granted may be granted to any one Participant during any one calendar year. Notwithstanding

the foregoing, if any additional Options, SARs or Other Stock Awards whose value is determined by reference to an increase over an exercise or strike price of at least 100% of the Fair Market Value on the date the Stock Award are granted to any Participant during any calendar year, compensation attributable to the exercise of such additional Stock Awards will not satisfy the requirements to be considered "qualified performance-based compensation" under Section 162(m) of the Code unless such additional Stock Award is approved by the Company's stockholders.

(ii) A maximum of 1,000,000 shares of Common Stock subject to Performance Stock Awards may be granted to any one Participant during any one calendar year (whether the grant, vesting or exercise is contingent upon the attainment during the Performance Period of the Performance Goals).

(iii) A maximum of $3,000,000 may be granted as a Performance Cash Award to any one Participant during any one calendar year.

(e) Source of Shares. The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

(f) Limitation on Grants to Non-Employee Directors. The maximum number of shares of Common Stock subject to Stock Awards granted under the Plan or otherwise during any one calendar year to any Non-Employee Director, taken together with any cash fees paid by the Company to such Non-Employee Director during such calendar year for service on the Board, will not exceed $500,000 in total value (calculating the value of any such Stock Awards based on the grant date fair value of such Stock Awards for financial reporting purposes), or, with respect to the calendar year in which a Non-Employee Director is first appointed or elected to the Board, $850,000.

(g) Inducement Share Pool and Inducement Award Rules. This Section 3(g) will apply with respect to an additional 1,130,000 shares of Common Stock reserved under this Plan by action of the Board (or a committee thereof) to be used exclusively for the grant of Inducement Awards in compliance with NASDAQ Listing Rule 5635(c)(4) (the "***Inducement Shares***"). The Inducement Shares that may be awarded under this Section 3(g) shall be in addition to and shall not reduce the Share Reserve.

In addition, the following rules and restrictions shall apply to any Inducement Award granted pursuant to the Plan:

(i) Eligible Inducement Award Recipients. An Inducement Award may be granted only to an Employee who has not previously been an Employee or a Non-Employee Director of the Company or an Affiliate, or following a bona fide period of non-employment, as an inducement material to the individual's entering into employment with the Company within the meaning of Rule 5635(c)(4) of the NASDAQ Listing Rules.

(ii) No Incentive Stock Options. No Inducement Award may be designated as an Incentive Stock Option.

(iii) Approval of Inducement Awards. All Inducement Awards must be granted by a Committee consisting of the majority of the Company's independent directors or the Company's independent compensation committee, in each case in accordance with NASDAQ Listing Rule 5635(c)(4).

(iv) Limitation on Share Recycling. The shares of Common Stock underlying any Inducement Awards that are forfeited, canceled, held back upon exercise of an Inducement Award or settlement of an Inducement Award to cover the exercise price or tax withholding, reacquired or repurchased by the Company, satisfied without the issuance of Common Stock or otherwise terminated (other than by exercise) shall be added back to the Inducement Shares available for grant under this Section 3(g), but shall not be added back to the Share Reserve.

(v) The limits in Section 3(d) will not apply to Inducement Awards.

4. ELIGIBILITY.

(a) Eligibility for Specific Stock Awards. Incentive Stock Options may be granted only to employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and 424(f) of the Code). Stock Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants; *provided*, *however*, that Stock Awards may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any "parent" of the Company, as such term is defined in Rule 405 of the Securities Act, unless (i) the stock underlying such Stock Awards is treated as "service recipient stock" under Section 409A of the Code (for example, because the Stock Awards are granted pursuant to a corporate transaction such as a spin off transaction), (ii) the Company, in consultation with its legal counsel, has determined that such Stock Awards are otherwise exempt from Section 409A of the Code, or (iii) the Company, in consultation with its legal counsel, has determined that such Stock Awards comply with the distribution requirements of Section 409A of the Code.

(b) Ten Percent Stockholders. A Ten Percent Stockholder will not be granted an Incentive Stock Option unless the exercise price of such Option is at least 110% of the Fair Market Value on the date of grant and the Option is not exercisable after the expiration of five years from the date of grant.

5. PROVISIONS RELATING TO OPTIONS AND STOCK APPRECIATION RIGHTS.

Each Option or SAR will be in such form and will contain such terms and conditions as the Board deems appropriate. All Options will be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates will be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, or if an Option is designated as an Incentive Stock Option but some portion or all of the Option fails to qualify as an Incentive Stock Option under the applicable rules, then the Option (or portion thereof) will be a Nonstatutory Stock Option. The provisions of separate Options or SARs need not be identical; *provided, however*, that each Award Agreement will conform to (through

incorporation of provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option or SAR will be exercisable after the expiration of ten years from the date of its grant or such shorter period specified in the Award Agreement.

(b) Exercise Price. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, the exercise or strike price of each Option or SAR will be not less than 100% of the Fair Market Value of the Common Stock subject to the Option or SAR on the date the Award is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price lower than 100% of the Fair Market Value of the Common Stock subject to the Award if such Award is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Section 409A and, if applicable, Section 424(a) of the Code. Each SAR will be denominated in shares of Common Stock equivalents.

(c) Purchase Price for Options. The purchase price of Common Stock acquired pursuant to the exercise of an Option may be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board will have the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to use a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, bank draft or money order payable to the Company;

(ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) if an Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided*, *however*, that the Company will accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued. Shares of Common Stock will no longer be subject to an Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations; or

(v) in any other form of legal consideration that may be acceptable to the Board and specified in the applicable Award Agreement.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Stock Appreciation Right Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such SAR, and with respect to which the Participant is exercising the SAR on such date, over (B) the aggregate strike price of the number of Common Stock equivalents with respect to which the Participant is exercising the SAR on such date. The appreciation distribution may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Award Agreement evidencing such SAR.

(e) Transferability of Options and SARs. The Board may, in its sole discretion, impose such limitations on the transferability of Options and SARs as the Board will determine. In the absence of such a determination by the Board to the contrary, the following restrictions on the transferability of Options and SARs will apply:

(i) Restrictions on Transfer. An Option or SAR will not be transferable except by will or by the laws of descent and distribution (or pursuant to subsections (ii) and (iii) below), and will be exercisable during the lifetime of the Participant only by the Participant. The Board may permit transfer of the Option or SAR in a manner that is not prohibited by applicable tax and securities laws. Except as explicitly provided in the Plan, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Subject to the approval of the Board or a duly authorized Officer, an Option or SAR may be transferred pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulations Section 1.421-1(b)(2). If an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(iii) Beneficiary Designation. Subject to the approval of the Board or a duly authorized Officer, a Participant may, by delivering written notice to the Company, in a form approved by the Company (or the designated broker), designate a third party who, on the death of the Participant, will thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, upon the death of the Participant, the executor or administrator of the Participant's estate will be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. However, the Company may prohibit designation of a beneficiary at any time, including due to any conclusion by the Company that such designation would be inconsistent with the provisions of applicable laws.

(f) Vesting Generally. The total number of shares of Common Stock subject to an Option or SAR may vest and become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of

Performance Goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates (other than for Cause and other than upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Award as of the date of termination of Continuous Service) within the period of time ending on the earlier of (i) the date three months following the termination of the Participant's Continuous Service (or such longer or shorter period specified in the applicable Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time frame, the Option or SAR will terminate.

(h) Extension of Termination Date. If the exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause and other than upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post termination exercise period after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, and (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement. In addition, unless otherwise provided in a Participant's Award Agreement, if the sale of any Common Stock received on exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR will terminate on the earlier of (i) the expiration of a period of months (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date 12 months following such termination of Continuous Service (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the applicable time frame, the Option or SAR (as applicable) will terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the period (if any) specified in the Award Agreement for exercisability after the termination of the Participant's Continuous Service for a reason other than death, then the Option or SAR may be exercised (to the extent the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance or by a person designated to exercise the Option or SAR upon the Participant's death, but only within the period ending on the earlier of (i) the date 18 months following the date of death (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of such Option or SAR as set forth in the Award Agreement. If, after the Participant's death, the Option or SAR is not exercised within the applicable time frame, the Option or SAR (as applicable) will terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in a Participant's Award Agreement or other individual written agreement between the Company or any Affiliate and the Participant, if a Participant's Continuous Service is terminated for Cause, the Option or SAR will terminate immediately upon such Participant's termination of Continuous Service, and the Participant will be prohibited from exercising his or her Option or SAR from and after the time of such termination of Continuous Service.

(l) Non-Exempt Employees. If an Option or SAR is granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, the Option or SAR will not be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR (although the Award may vest prior to such date). Consistent with the provisions of the Worker Economic Opportunity Act, (i) if such non-exempt Employee dies or suffers a Disability, (ii) upon a Corporate Transaction in which such Option or SAR is not assumed, continued, or substituted, (iii) upon a Change in Control, or (iv) upon the Participant's retirement (as such term may be defined in the Participant's Award Agreement in another agreement between the Participant and the Company, or, if no such definition, in accordance with the Company's then current employment policies and guidelines), the vested portion of any Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay. To the extent permitted and/or required for compliance with the Worker Economic Opportunity Act to ensure that any income derived by a non-exempt employee in connection with the exercise, vesting or issuance of any shares under any other Stock Award will be exempt from the employee's regular rate of pay, the provisions of this Section 5(l) will apply to all Stock Awards and are hereby incorporated by reference into such Stock Award Agreements.

6. PROVISIONS OF STOCK AWARDS OTHER THAN OPTIONS AND SARS.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement will be in such form and will contain such terms and conditions as the Board will deem appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock may be (x) held in book entry form subject to the Company's instructions until any restrictions

relating to the Restricted Stock Award lapse; or (y) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical. Each Restricted Stock Award Agreement will conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash, check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate, or (C) any other form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant's Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant that have not vested as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under the Restricted Stock Award Agreement will be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board will determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement.

(v) Dividends. A Restricted Stock Award Agreement may provide that any dividends paid on Restricted Stock will be subject to the same vesting and forfeiture restrictions as apply to the shares subject to the Restricted Stock Award to which they relate.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement will be in such form and will contain such terms and conditions as the Board will deem appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical. Each Restricted Stock Unit Award Agreement will conform to (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(v) Dividend Equivalents. Dividend equivalents may be credited in respect of shares of Common Stock covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Restricted Stock Unit Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional shares of Common Stock covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all of the same terms and conditions of the underlying Restricted Stock Unit Award Agreement to which they relate.

(vi) Termination of Participant's Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(c) Performance Awards.

(i) Performance Stock Awards. A Performance Stock Award is a Stock Award (covering a number of shares not in excess of that set forth in Section 3(d) above) that is payable (including that may be granted, may vest or may be exercised) contingent upon the attainment during a Performance Period of certain Performance Goals. A Performance Stock Award may, but need not, require the Participant's completion of a specified period of Continuous Service. The length of any Performance Period, the Performance Goals to be achieved during the Performance Period, and the measure of whether and to what degree such Performance Goals have been attained will be conclusively determined by the Committee (or, if not required for compliance with Section 162(m) of the Code, the Board), in its sole discretion. In addition, to the extent permitted by applicable law and the applicable Award Agreement, the Board may determine that cash may be used in payment of Performance Stock Awards.

(ii) Performance Cash Awards. A Performance Cash Award is a cash award (for a dollar value not in excess of that set forth in Section 3(d) above) that is payable contingent upon the attainment during a Performance Period of certain Performance Goals. A Performance Cash Award may also require the completion of a specified period of Continuous Service. At the time of grant of a Performance Cash Award, the length of any Performance Period, the

Performance Goals to be achieved during the Performance Period, and the measure of whether and to what degree such Performance Goals have been attained will be conclusively determined by the Committee (or, if not required for compliance with Section 162(m) of the Code, the Board), in its sole discretion. The Board may specify the form of payment of Performance Cash Awards, which may be cash or other property, or may provide for a Participant to have the option for his or her Performance Cash Award, or such portion thereof as the Board may specify, to be paid in whole or in part in cash or other property.

(iii) Board Discretion. The Board retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of Performance Goals and to define the manner of calculating the Performance Criteria it selects to use for a Performance Period. Partial achievement of the specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the Stock Award Agreement or the written terms of a Performance Cash Award.

(iv) Section 162(m) Compliance. Unless otherwise permitted in compliance with the requirements of Section 162(m) of the Code with respect to an Award intended to qualify as "performance-based compensation" thereunder, the Committee will establish the Performance Goals applicable to, and the formula for calculating the amount payable under, the Award no later than the earlier of (a) the date 90 days after the commencement of the applicable Performance Period, and (b) the date on which 25% of the Performance Period has elapsed, and in any event at a time when the achievement of the applicable Performance Goals remains substantially uncertain. Prior to the payment of any compensation under an Award intended to qualify as "performance-based compensation" under Section 162(m) of the Code, the Committee will certify the extent to which any Performance Goals and any other material terms under such Award have been satisfied (other than in cases where such Performance Goals relate solely to the increase in the value of the Common Stock). Notwithstanding satisfaction of, or completion of any Performance Goals, the number of shares of Common Stock, Options, cash or other benefits granted, issued, retainable and/or vested under an Award on account of satisfaction of such Performance Goals may be reduced by the Committee on the basis of such further considerations as the Committee, in its sole discretion, will determine.

(d) Other Stock Awards. Other forms of Stock Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (e.g., options or stock rights with an exercise price or strike price less than 100% of the Fair Market Value of the Common Stock at the time of grant) may be granted either alone or in addition to Stock Awards provided for under Section 5 and the preceding provisions of this Section 6. Subject to the provisions of the Plan, the Board will have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. COVENANTS OF THE COMPANY.

(a) Availability of Shares. The Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy then-outstanding Awards.

(b) Securities Law Compliance. The Company will seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise of the Stock Awards; *provided*, *however*, that this undertaking will not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such authority is obtained. A Participant will not be eligible for the grant of an Award or the subsequent issuance of cash or Common Stock pursuant to the Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company will have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising such Stock Award. Furthermore, the Company will have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of an Award or a possible period in which the Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of an Award to the holder of such Award.

8. MISCELLANEOUS.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Awards will constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Awards. Corporate action constituting a grant by the Company of an Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (e.g., Board consents, resolutions or minutes) documenting the corporate action constituting the grant contain terms (e.g., exercise price, vesting schedule or number of shares) that are inconsistent with those in the Award Agreement or related grant documents as a result of a clerical error in the papering of the Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Award Agreement or related grant documents.

(c) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to an Award unless and until (i) such Participant has satisfied all requirements for exercise of, or the issuance of shares of Common Stock under, the Award pursuant to its terms, and (ii) the issuance of the Common Stock subject to such Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award

granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Award was granted or will affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company and any Affiliates is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Award to the Participant, the Board has the right in its sole discretion to (x) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Award that is scheduled to vest or become payable after the date of such change in time commitment, and (y) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Award that is so reduced or extended.

(f) Incentive Stock Option Limitations. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000 (or such other limit established in the Code) or otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(g) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that such Participant is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Award; and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, will be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Award has been registered under a then currently effective registration statement under the Securities Act, or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such

counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(h) Withholding Obligations. Unless prohibited by the terms of an Award Agreement, the Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to an Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Award; *provided*, *however*, that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by law (or such lesser amount as may be necessary to avoid classification of the Stock Award as a liability for financial accounting purposes); (iii) withholding cash from an Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Award Agreement.

(i) Electronic Delivery. Any reference herein to a "written" agreement or document will include any agreement or document delivered electronically, filed publicly at www.sec.gov (or any successor website thereto) or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access).

(j) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company. The Board is authorized to make deferrals of Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(k) Compliance with Section 409A of the Code. Unless otherwise expressly provided for in an Award Agreement, the Plan and Award Agreements will be interpreted to the greatest extent possible in a manner that makes the Plan and the Awards granted hereunder exempt from Section 409A of the Code, and, to the extent not so exempt, in compliance with Section 409A of the Code. If the Board determines that any Award granted hereunder is not exempt from and is therefore subject to Section 409A of the Code, the Award Agreement evidencing such Award will incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code, and to the extent an Award Agreement is silent on terms necessary for compliance, such terms are hereby incorporated by reference into the Award Agreement. Notwithstanding anything to the contrary in this Plan (and unless the Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded, and if a Participant holding an Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount that is due because of a "separation from service" (as defined in Section 409A of the Code without regard to alternative

definitions thereunder) will be issued or paid before the date that is six months following the date of such Participant's "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) or, if earlier, the date of the Participant's death, unless such distribution or payment can be made in a manner that complies with Section 409A of the Code, and any amounts so deferred will be paid in a lump sum on the day after such six month period elapses, with the balance paid thereafter on the original schedule.

(l) Clawback/Recovery. All Awards granted under the Plan will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in an Award Agreement as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of Common Stock or other cash or property upon the occurrence of an event constituting Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a right to resign for "good reason" or "constructive termination" (or similar term) under any agreement with the Company.

9. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c), (iii) the class(es) and maximum number of securities that may be awarded to any person pursuant to Sections 3(d), and (iv) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board will make such adjustments, and its determination will be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service; *provided*, *however*, that the Board may, in its sole discretion, cause some or all Stock Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Stock Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions shall apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Stock Award or any other written agreement between the Company or any Affiliate and the Participant or unless otherwise expressly provided by the Board at the time of grant of a Stock

Award. In the event of a Corporate Transaction, then, notwithstanding any other provision of the Plan, the Board shall take one or more of the following actions with respect to Stock Awards, contingent upon the closing or completion of the Corporate Transaction:

(i) arrange for the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) to assume or continue the Stock Award or to substitute a similar stock award for the Stock Award (including, but not limited to, an award to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction);

(ii) arrange for the assignment of any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to the Stock Award to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company);

(iii) accelerate the vesting, in whole or in part, of the Stock Award (and, if applicable, the time at which the Stock Award may be exercised) to a date prior to the effective time of such Corporate Transaction as the Board shall determine (or, if the Board shall not determine such a date, to the date that is five days prior to the effective date of the Corporate Transaction), with such Stock Award terminating if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction;

(iv) arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by the Company with respect to the Stock Award;

(v) cancel or arrange for the cancellation of the Stock Award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration, if any, as the Board, in its sole discretion, may consider appropriate; and

(vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of the Stock Award immediately prior to the effective time of the Corporate Transaction, over (B) any exercise price payable by such holder in connection with such exercise.

The Board need not take the same action or actions with respect to all Stock Awards or portions thereof or with respect to all Participants.

(d) Change in Control. A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award or as may be provided in any other written agreement between the Company or any Affiliate and the Participant, but in the absence of such provision, no such acceleration will occur.

10. PLAN TERM; EARLIER TERMINATION OR SUSPENSION OF THE PLAN.

The Board may suspend or terminate the Plan at any time. No Incentive Stock Options may be granted after the tenth anniversary of the earlier of (i) the date the Plan, as amended in

2017, is adopted by the Board (the "***Adoption Date***"), or (ii) the date the Plan, as amended in 2017, is approved by the stockholders of the Company. No Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

11. EXISTENCE OF THE PLAN; TIMING OF FIRST GRANT OR EXERCISE.

The Plan will come into existence on the Adoption Date; *provided, however*, that no Award may be granted prior to the IPO Date. In addition, no Stock Award will be exercised (or, in the case of a Restricted Stock Award, Restricted Stock Unit Award, Performance Stock Award, or Other Stock Award, no Stock Award will be granted) and no Performance Cash Award will be settled unless and until the Plan has been approved by the stockholders of the Company, which approval will be within 12 months after the date the Plan is adopted by the Board.

12. CHOICE OF LAW.

The law of the State of Delaware will govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. DEFINITIONS. As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 of the Securities Act. The Board will have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(b) "***Award***" means a Stock Award or a Performance Cash Award.

(c) "***Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of an Award.

(d) "***Board***" means the Board of Directors of the Company.

(e) "***Capital Stock***" means each and every class of common stock of the Company, regardless of the number of votes per share.

(f) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Adoption Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(g) "***Cause***" shall have the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of any of the following events: (i) such Participant's commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (iii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or of any statutory duty owed to the Company; (iv) such Participant's unauthorized use or disclosure of the Company's confidential information or trade secrets; or (v) such Participant's gross misconduct. The determination that a termination of the Participant's Continuous Service is either for Cause or without Cause shall be made by the Company, in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Awards held by such Participant shall have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(h) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control will not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, (C) on account of the acquisition of securities of the Company by any individual who is, on the IPO Date, either an executive officer or a Director (either, an "***IPO Investor***") and/or any entity in which an IPO Investor has a direct or indirect interest (whether in the form of voting rights or participation in profits or capital contributions) of more than 50% (collectively, the "***IPO Entities***") or on account of the IPO Entities continuing to hold shares that come to represent more than 50% of the combined voting power of the Company's then outstanding securities as a result of the conversion of any class of the Company's securities into another class of the Company's securities having a different number of votes per share pursuant to the conversion provisions set forth in the Company's Amended and Restated Certificate of Incorporation; or (D) solely because the level of Ownership held by any Exchange Act Person (the "***Subject Person***") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control will be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction; *provided, however*, that a merger, consolidation or similar transaction will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the surviving Entity or its parent are owned by the IPO Entities;

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; *provided*, *however*, that a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries will not constitute a Change in Control under this prong of the definition if the outstanding voting securities representing more than 50% of the combined voting power of the acquiring Entity or its parent are owned by the IPO Entities;

(iv) the stockholders of the Company approve or the Board approves a plan of complete dissolution or liquidation of the Company, or a complete dissolution or liquidation of the Company will otherwise occur, except for a liquidation into a parent corporation; or

(v) individuals who, on the date the Plan is adopted by the Board, are members of the Board (the "***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; *provided*, *however,* that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member will, for purposes of this Plan, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing definition or any other provision of the Plan, the term Change in Control will not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company and the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant will supersede the foregoing definition with respect to Awards subject to such agreement; *provided*, *however*, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition will apply.

(i) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(j) "***Committee***" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(k) "***Common Stock***" means, as of the IPO Date, the common stock of the Company, having one vote per share.

(l) "***Company***" means Bellicum Pharmaceuticals, Inc., a Delaware corporation.

(m) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan. Notwithstanding the foregoing, a person is treated as a Consultant under this Plan only if a Form S-8 Registration Statement under the Securities Act is available to register either the offer or the sale of the Company's securities to such person.

(n) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Consultant or Director or a change in the entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided*, *however*, that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, in its sole discretion, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in an Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(o) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board, in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) a sale or other disposition of at least 90% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(p) "***Covered Employee***" will have the meaning provided in Section 162(m)(3) of the Code.

(q) "***Director***" means a member of the Board.

(r) "***Disability***" means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than 12 months, as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(s) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(t) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(u) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(v) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the IPO Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(w) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock will be, unless otherwise determined by the Board, the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing selling price on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, the Fair Market Value will be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(x) "***Incentive Stock Option***" means an option granted pursuant to Section 5 of the Plan that is intended to be, and qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(y) "***Inducement Award***" means a Stock Award, other than an Incentive Stock Option, that is granted pursuant to Section 3(g) of the Plan.

(z) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(aa) "***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K; or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(bb) "***Nonstatutory Stock Option***" means any Option granted pursuant to Section 5 of the Plan that does not qualify as an Incentive Stock Option.

(cc) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(dd) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(ee) "***Option Agreement***" means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement will be subject to the terms and conditions of the Plan.

(ff) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(gg) "***Other Stock Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 6(d).

(hh) "***Other Stock Award Agreement***" means a written agreement between the Company and a holder of an Other Stock Award evidencing the terms and conditions of an Other Stock Award grant. Each Other Stock Award Agreement will be subject to the terms and conditions of the Plan.

(ii) "***Outside Director***" means a Director who either (i) is not a current employee of the Company or an "affiliated corporation" (within the meaning of Treasury Regulations promulgated under Section 162(m) of the Code), is not a former employee of the Company or an "affiliated corporation" who receives compensation for prior services (other than benefits under a tax-qualified retirement plan) during the taxable year, has not been an officer of the Company or an "affiliated corporation," and does not receive remuneration from the Company or an "affiliated corporation," either directly or indirectly, in any capacity other than as a Director, or (ii) is otherwise considered an "outside director" for purposes of Section 162(m) of the Code.

(jj) "***Own,***" "***Owned,***" "***Owner,***" "***Ownership***" means a person or Entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(kk) "***Participant***" means a person to whom an Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award.

(ll) "***Performance Cash Award***" means an award of cash granted pursuant to the terms and conditions of Section 6(c)(ii).

(mm) "***Performance Criteria***" means the one or more criteria that the Board will select for purposes of establishing the Performance Goals for a Performance Period. The Performance Criteria that will be used to establish such Performance Goals may be based on any one of, or combination of, the following as determined by the Board: (i) earnings (including earnings per share and net earnings); (ii) earnings before interest, taxes and depreciation; (iii) earnings before interest, taxes, depreciation and amortization; (iv) earnings before interest, taxes, depreciation, amortization and legal settlements; (v) earnings before interest, taxes, depreciation, amortization, legal settlements and other income (expense); (vi) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense) and stock-based compensation; (vii) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation and changes in deferred revenue; (viii) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation, other non-cash expenses and changes in deferred revenue; (ix) total stockholder return; (x) return on equity or average stockholder's equity; (xi) return on assets, investment, or capital employed; (xii) stock price; (xiii) margin (including gross margin); (xiv) income (before

or after taxes); (xv) operating income; (xvi) operating income after taxes; (xvii) pre-tax profit; (xviii) operating cash flow; (xix) sales or revenue targets; (xx) increases in revenue or product revenue; (xxi) expenses and cost reduction goals; (xxii) improvement in or attainment of working capital levels; (xxiii) economic value added (or an equivalent metric); (xxiv) market share; (xxv) cash flow; (xxvi) cash flow per share; (xxvii) cash balance; (xxviii) cash burn; (xxix) cash collections; (xxx) share price performance; (xxxi) debt reduction; (xxxii) implementation or completion of projects or processes (including, without limitation, clinical trial initiation, clinical trial enrollment and dates, clinical trial results, regulatory filing submissions, regulatory filing acceptances, regulatory or advisory committee interactions, regulatory approvals, and product supply); (xxxiii) stockholders' equity; (xxxiv) capital expenditures; (xxxv) debt levels; (xxxvi) operating profit or net operating profit; (xxxvii) workforce diversity; (xxxviii) growth of net income or operating income; (xxxix) billings; (xl) bookings; (xli) employee retention; (xlii) initiation of studies by specific dates; (xliii) budget management; (xliv) submission to, or approval by, a regulatory body (including, but not limited to the U.S. Food and Drug Administration) of an applicable filing or a product; (xlv) regulatory milestones; (xlvi) progress of internal research or development programs; (xlvii) acquisition of new customers; (xlviii) customer retention and/or repeat order rate; (xlix) improvements in sample and test processing times; (l) progress of partnered programs; (li) partner satisfaction; (lii) timely completion of clinical trials; (liii) submission of 510(k)s or pre-market approvals and other regulatory achievements; (liv) milestones related to samples received and/or tests or panels run; (lv) expansion of sales in additional geographies or markets; (lvi) research progress, including the development of programs; (lvii) strategic partnerships or transactions (including in-licensing and out-licensing of intellectual property; and (lviii) and to the extent that an Award is not intended to comply with Section 162(m) of the Code, other measures of performance selected by the Board.

(nn) "***Performance Goals***" means, for a Performance Period, the one or more goals established by the Board for the Performance Period based upon the Performance Criteria. Performance Goals may be based on a Company-wide basis, with respect to one or more business units, divisions, Affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the Board (i) in the Award Agreement at the time the Award is granted or (ii) in such other document setting forth the Performance Goals at the time the Performance Goals are established, the Board will appropriately make adjustments in the method of calculating the attainment of Performance Goals for a Performance Period as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by the Company achieved performance objectives at targeted levels during the balance of a Performance Period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of common stock of the Company by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and the award of bonuses

under the Company's bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles; and (12) to exclude the effects of the timing of acceptance for review and/or approval of submissions to the U.S. Food and Drug Administration or any other regulatory body. In addition, the Board retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of Performance Goals and to define the manner of calculating the Performance Criteria it selects to use for such Performance Period. Partial achievement of the specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the Stock Award Agreement or the written terms of a Performance Cash Award.

(oo) "***Performance Period***" means the period of time selected by the Board over which the attainment of one or more Performance Goals will be measured for the purpose of determining a Participant's right to and the payment of a Stock Award or a Performance Cash Award. Performance Periods may be of varying and overlapping duration, at the sole discretion of the Board.

(pp) "***Performance Stock Award***" means a Stock Award granted under the terms and conditions of Section 6(c)(i).

(qq) "***Plan***" means this Bellicum Pharmaceuticals, Inc. 2014 Equity Incentive Plan.

(rr) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(ss) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(tt) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(uu) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement will be subject to the terms and conditions of the Plan.

(vv) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(ww) "***Securities Act***" means the Securities Act of 1933, as amended.

(xx) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(yy) "***Stock Appreciation Right Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement will be subject to the terms and conditions of the Plan.

(zz) "***Stock Award***" means any right to receive Common Stock granted under the Plan, including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, a Stock Appreciation Right, a Performance Stock Award or any Other Stock Award.

(aaa) "***Stock Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement will be subject to the terms and conditions of the Plan.

(bbb) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(ccc) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a) AND 15d-14(a) OF THE SECURITIES EXCHANGE ACT, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Richard A. Fair, certify that:

1. I have reviewed this Form 10-Q of Bellicum Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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;

consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 7, 2019

By: /s/ Richard A. Fair

Richard A. Fair

President and Chief Executive Officer (Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a) AND 15d-14(a) OF THE SECURITIES EXCHANGE ACT, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Atabak Mokari, certify that:

1. I have reviewed this Form 10-Q of Bellicum Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 7, 2019

By: /s/ Atabak Mokari

Atabak Mokari

Chief Financial Officer (Principal Financial Officer)

(Principal Financial Officer)

Exhibit 32.1

CERTIFICATIONS 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 on Form 10-Q for the quarter ended March 31, 2019 (the "Report") of Bellicum Pharmaceuticals, Inc. (the "Registrant"), as filed with the Securities and Exchange Commission on the date hereof, the undersigned, in their capacities as officers of the Registrant, do each hereby certify, that, to the best of such officer's knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

/s/ Richard A. Fair

Richard A. Fair
President and Chief Executive Officer
(Principal Executive Officer)
May 7, 2019

/s/ Atabak Mokari

Atabak Mokari
Chief Financial Officer
(Principal Financial Officer)

May 7, 2019

This certification accompanies the Report to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the report), irrespective of any general incorporation language contained in such filing.