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

FORM 10-Q

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

For the quarterly period ended September 30, 2018

or

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

For the transition period from_____ to _____

Commission File Number: 001-32979

Molecular Templates, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**94-3409596**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
9301 Amberglen Blvd Suite 100 Austin, TX 78729 (Address of principal executive offices)	**78729 (Zip Code)**

(512) 869-1555
(Registrant's telephone number, including area code)

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

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

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

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

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

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

On November 6, 2018, there were 36,496,116 shares of common stock, par value $0.001 per share, of Molecular Templates, Inc. outstanding.

FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements that involve risks and uncertainties. We make such forward-looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. All statements, other than statements of historical facts contained herein, regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans, objectives of management and expected market growth are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expects," "intends," "plans," "anticipates," "believes," "estimates," "predicts," "potential," "continue" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these identifying words. These forward-looking statements include, but are not limited to, statements about:

- the implementation of our business strategies, including our ability to pursue development pathways and regulatory strategies for MT-3724 and other engineered toxin body, or ETB, product candidates;
- the timing and our ability to advance the development of our product candidates;
- our plans to pursue discussions with regulatory authorities, and the anticipated timing, scope and outcome of related regulatory actions or guidance;
- our ability to establish and maintain potential new partnering or collaboration arrangements for the development and commercialization of ETB product candidates;
- our financial condition, including our ability to obtain the funding necessary to advance the development of our product candidates;
- the anticipated progress of our product candidate development programs, including whether our ongoing and potential future clinical trials will achieve clinically relevant results;
- our ability to generate data and conduct analyses to support the regulatory approval of our product candidates;
- our ability to establish and maintain intellectual property rights for our product candidates;
- whether any product candidates that we are able to commercialize are safer or more effective than other marketed products, treatments or therapies;
- our ability to discover and develop additional product candidates suitable for clinical testing;
- our ability to identify, in-license or otherwise acquire additional product candidates and development programs;
- our anticipated research and development activities and projected expenditures;
- our ability to complete preclinical and clinical testing successfully for new product candidates that we may develop or license;
- our ability to have manufactured active pharmaceutical ingredient, or API, and drug product that meet required release and stability specifications;
- our ability to have manufactured sufficient supplies of drug product for clinical testing and commercialization;
- our ability to obtain licenses to any necessary third-party intellectual property;
- our ability to retain and hire necessary employees and appropriately staff our development programs; and
- the sufficiency of our cash resources; and other risks and uncertainties, including those listed under Part II, Item 1A. "Risk Factors".

Any forward-looking statements in this Quarterly Report on Form 10-Q reflect our current views with respect to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under Part II, Item 1A. "Risk Factors" and elsewhere in this Quarterly Report on Form 10-Q. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

This Quarterly Report on Form 10-Q also contains estimates, projections and other information concerning our industry, our business, and the markets for certain diseases, including data regarding the incidence and prevalence of certain medical conditions. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources

Molecular Templates, Inc.

TABLE OF CONTENTS

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Molecular Templates, Inc.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	September 30, 2018 (unaudited)	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 78,744	$ 58,910
Prepaid expenses	2,535	1,485
Accounts receivable from related party	31,163	—
Other current assets	4,385	19
Total current assets	116,827	60,414
Property and equipment, net	7,165	1,952
In-process research and development	26,623	26,623
Other assets	1,345	1,402
Total assets	$ 151,960	$ 90,391
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,630	$ 2,517
Accrued liabilities	6,595	2,690
Current portion of long-term debt	—	2,400
Deferred revenue	33,400	2,765
Other current liabilities	106	70
Total current liabilities	41,731	10,442
Warrant liabilities	38	954
Long-term debt, net	3,155	1,078
Other liabilities	844	628
Total liabilities	45,768	13,102
Commitments and contingencies (Note 9)		
Stockholders' equity		
Common stock, $0.001 par value, shares authorized: 150,000,000 shares; issued and outstanding: 36,496,116 shares at September 30, 2018 and 26,898,330 shares at December 31, 2017	36	27
Additional paid-in capital	194,226	141,733
Accumulated other comprehensive loss	—	—
Accumulated deficit	(88,070)	(64,471)
Total stockholders' equity	106,192	77,289
Total liabilities and stockholders' equity	$ 151,960	$ 90,391

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Molecular Templates, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except share and per share data)
(unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Research and development revenue	$ 2,031	$ 648	$ 3,206	$ 2,408
Grant revenue	4,721	—	5,395	167
Total revenue	6,752	648	8,601	2,575
Operating expenses:				
Research and development	8,290	2,522	22,640	4,829
General and administrative	3,538	3,996	10,165	8,233
Total operating expenses	11,828	6,518	32,805	13,062
Loss from operations	5,076	5,870	24,204	10,487
Interest and other income, net	107	1	307	2
Interest expense	(279)	(107)	(672)	(752)
Change in fair value of warrant liabilities	4	(272)	916	(269)
Loss on conversion of notes	—	(4,719)	—	(4,719)
Net loss	5,244	10,967	23,653	16,225
Deemed dividends on preferred stock	—	(138)	—	(958)
Net loss attributable to common shareholders	$ 5,244	$ 11,105	$ 23,653	$ 17,183
Net loss per share attributable to common shareholders:				
Basic and diluted	$ 0.19	$ 0.62	$ 0.87	$ 2.75
Weighted average number of shares used in net loss per share calculations:				
Basic and diluted	27,680,307	17,925,585	27,246,667	6,241,947
Other comprehensive loss:				
Unrealized gain (loss) on available-for-sale securities	—	—	—	—
Comprehensive loss	$ 5,244	$ 11,105	$ 23,653	$ 17,183

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Molecular Templates, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Nine Months Ended September 30,	
	2018	2017
Cash flows from operating activities:		
Net loss	$ 23,653	$ 16,225
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	569	71
Stock-based compensation expense	2,762	1,430
Amortization of debt discount and accretion related to debt	219	282
Change in common stock warrant fair value	(916)	269
Accretion of asset retirement obligations	28	—
Capitalized interest	(125)	—
Loss on extinguishment of debt	115	4,719
Changes in operating assets and liabilities:		
Prepaid expenses	(1,116)	(280)
Accounts receivable from related party	(31,163)	(38)
Other current assets	(4,313)	(57)
Other assets	57	—
Accounts payable	(906)	2,618
Accrued liabilities	3,733	(1,003)
Other current liabilities	49	145
Other liabilities	166	—
Deferred revenue	30,635	1,715
Net cash used in operating activities	(23,859)	(6,354)
Cash flows from investing activities:		
Cash received from merger transaction	—	11,216
Purchases of property and equipment	(5,421)	(369)
Increase in other assets	—	(400)
Net cash used in investing activities	(5,421)	10,447
Cash flows from financing activities:		
Payments of capital lease obligations	(36)	(35)
Proceeds from issuance of long-term debt and warrants, net	4,537	—
Repayment of long-term debt	(3,605)	(1,800)
Retirement of stock warrants	—	(208)
Proceeds from issuance of related party debt	—	2,685
Proceeds from stock option exercises	157	14
Proceeds from promissory note	—	4,000
Proceeds from issuance of common stock and warrants, net of offering expenses	48,061	57,716
Net cash provided by financing activities	49,114	62,372
Net increase (decrease) in cash and cash equivalents	19,834	66,465
Cash and cash equivalents, beginning of period	58,910	1,716
Cash and cash equivalents, end of period	$ 78,744	$ 68,181
Supplemental Cash Flow Information		
Cash paid for interest	$ 286	$ 194
Non-Cash Investing and Financing Activities		
Fixed asset additions in accounts payable	$ 19	$ 274
Fixed asset additions in accrued expenses	$ 173	$ —
Deemed dividends on preferred stock	$ —	$ 958
Conversion of preferred stock	$ —	$ 26,830
Conversion of related party debt	$ —	$ 10,486
Capital lease additions to fixed assets	$ —	$ 57

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

NOTE 1 — ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of the Business

Molecular Templates, Inc. (the "Company" or "Molecular") is a clinical stage biopharmaceutical company formed in 2001, with a biologic therapeutic platform for the development of novel targeted therapeutics for cancer and other diseases, headquartered in Austin, Texas. The Company's focus is on the research and development of therapeutic compounds for a variety of cancers. Molecular operates its business as a single segment, as defined by U.S. generally accepted accounting principles ("U.S. GAAP").

On August 1, 2017, the Company, formerly known as Threshold Pharmaceuticals, Inc. (Nasdaq: THLD) ("Threshold"), completed its business combination with the entity then known as Molecular Templates, Inc., a private Delaware Corporation ("Private Molecular"), in accordance with the terms of an Agreement and Plan of Merger and Reorganization (the "Merger Agreement"), dated as of March 16, 2017, by and among Threshold, Trojan Merger Sub, Inc., a wholly owned subsidiary of Threshold ("Merger Sub"), and Private Molecular. Pursuant to the Merger Agreement, Merger Sub merged with and into Private Molecular, with Private Molecular surviving as a wholly-owned subsidiary of Threshold (the "Merger") and Private Molecular changed its name to "Molecular Templates OpCo, Inc." Also on August 1, 2017, in connection with, and prior to the completion of the Merger, Threshold effected an 11-for-1 reverse stock split of its common stock (the "Reverse Stock Split") and changed its name to "Molecular Templates, Inc." Following the completion of the Merger, the business conducted by Private Molecular became primarily the business conducted by the Company as described in the paragraph above.

Basis of Presentation

These unaudited interim condensed consolidated financial statements reflect the historical results of Private Molecular prior to the completion of the Merger, and do not include the historical results of the Company prior to the completion of the Merger. All share and per share disclosures have been adjusted to reflect the exchange of shares in the Merger, and the 11-for-1 reverse stock split of the common stock effected on August 1, 2017. Under U.S. GAAP, the Merger is treated as a "reverse merger" under the purchase method of accounting. For accounting purposes, Private Molecular is considered to have acquired Threshold. See Note 3, "Merger with Private Molecular", for further details on the Merger and the U.S. GAAP accounting treatment.

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with U.S. GAAP pursuant to the requirements of the Securities and Exchange Commission ("SEC") for interim financial information and with the instructions to Form 10-Q and Rule 10-01 of Regulation S-X promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Accordingly, they do not include all of the information and footnotes required by U.S. GAAP for complete financial statements. The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the annual consolidated financial statements. In the opinion of management, all adjustments, consisting only of normal recurring adjustments necessary for the fair presentation of results for the periods presented, have been included. The results of operations of any interim period are not necessarily indicative of the results of operations for the full year or any other interim period.

The preparation of condensed consolidated financial statements requires management to make estimates and assumptions that affect the recorded amounts reported therein. A change in facts or circumstances surrounding the estimates could result in a change to estimates and impact future operating results.

The unaudited condensed consolidated financial statements and related disclosures have been prepared with the presumption that users of the interim unaudited condensed consolidated financial statements have read or have access to the audited consolidated financial statements for the preceding fiscal year. Accordingly, these unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto for the year ended December 31, 2017 included in the Company's Annual Report on Form 10-K filed with the SEC on March 30, 2018.

The unaudited condensed consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries, and reflect the elimination of intercompany accounts and transactions.

Significant Accounting Policies

Except as detailed below, there have been no material changes to the Company's significant accounting policies during the three and nine months ended September 30, 2018, as compared to the significant accounting policies disclosed in Note 1, Summary of significant accounting policies, to the consolidated financial statements in the Company's Annual Report on Form 10-K for the year ended December 31, 2017.

Revenue Recognition

Effective January 1, 2018, the Company adopted the Financial Accounting Standards Board's ("FASB") provisions of ASC 606,*Revenue from Contracts with Customers* (ASC 606), using the modified retrospective method for all contracts not completed as of the date of adoption. For contracts that were modified before the effective date, the Company reflected the aggregate effect of all modifications when identifying performance obligations and allocating transaction price in accordance with available practical expedients. The reported results for 2018 reflect the application of ASC 606 guidance, while the reported results for 2017 were prepared under the guidance of ASC 605, *Revenue Recognition*, which is also referred to herein as "Previous Guidance."

Under ASC 606, the Company recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the Company expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that are within the scope of ASC 606, the Company performs the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer.

The Company identifies the goods or services promised within each collaboration agreement and assesses whether each promised good or service is distinct for the purpose of identifying the performance obligations in the contract. This assessment involves subjective determinations and requires management to make judgments about the individual promised goods or services and whether such are separable from the other aspects of the contractual relationship. Promised goods and services are considered distinct provided that: (i) the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer and (ii) the entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract. In assessing whether a promised good or service is distinct, the Company considers factors such as the research, manufacturing and commercialization capabilities of the collaboration partner and the availability of the associated expertise in the general marketplace. If a promised good or service is not distinct, an entity is required to combine that promised good or service with other promised goods or services until it identifies a bundle of goods or services that is distinct.

The allocation of the transaction price to the performance obligations in proportion to their standalone selling prices is determined at contract inception. If the consideration promised in a contract includes a variable amount, the Company estimates the amount of consideration to which it will be entitled in exchange for transferring the promised goods or services to a customer. The Company determines the amount of variable consideration by using the expected value method or the most likely amount method. The Company includes the unconstrained amount of estimated variable consideration in the transaction price. The amount included in the transaction price is the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur. At the end of each subsequent reporting period, the Company re-evaluates the estimated variable consideration included in the transaction price and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment.

In determining the transaction price, the Company adjusts consideration for the effects of the time value of money if there is a significant benefit of financing. The Company assessed its collaboration agreements and concluded that no significant financing components were present.

If an arrangement contains customer options that allow the customer to acquire additional goods or services, including an exclusive license to the Company's intellectual property, the goods and services underlying the customer options are evaluated to determine whether they are deemed to represent a material right. In determining whether the customer option has a material right, the Company assesses whether there is an option to acquire additional goods or services at a discount. If the customer option is determined not to represent a material right, the option is not considered to be performance obligations at the outset of the arrangement. If the customer option is determined to represent a material right, the material right is recognized as a separate performance obligation at the outset of the arrangement. The Company allocates the transaction price to material rights based on the relative standalone selling price, which is determined based on the identified discount and the probability that the customer will exercise the option. Amounts allocated to a material right are not recognized as revenue until the option is exercised.

The Company recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation as each performance obligation is satisfied over time, based on the use of an input method. Performance obligations may include research and development services to be performed by the Company on behalf of the collaboration partner. Revenue is recognized on research and development efforts as the services are performed and presented on a gross basis, since the Company is the principal.

Under collaboration agreements, the timing of revenue recognition and contract billings may differ, and result in contract assets and contract liabilities. Contract assets represent revenues recognized in excess of amounts billed under collaboration agreements and are transferred to accounts receivable when billed or billing rights become unconditional. Contract liabilities represent billings in excess of revenues recognized under collaboration agreements.

Refer to Note 4*," Research and Development Agreements"*, for further details about the impact of the adoption of ASC 606.

Concentration of Credit Risk and Other Risks and Uncertainties

Financial instruments that potentially subject the Company to concentrations of risk consist principally of cash and cash equivalents, investments, long term debt and accounts receivable.

The Company's cash and cash equivalents are with two major financial institutions in the United States.

The Company performs an ongoing credit evaluation of its strategic partners' financial conditions and generally does not require collateral to secure accounts receivable from its strategic partners. The Company's exposure to credit risk associated with non-payment will be affected principally by conditions or occurrences within Takeda Pharmaceutical Company Ltd. ("Takeda"). Approximately 28% and 35% of total revenues for the three and nine months ended September 30, 2018, respectively, were derived from Takeda. There was $31.2 million in accounts receivable due from Takeda at September 30, 2018, which was received in October 2018. See also Note 4, "Research and Development Agreements", regarding the collaboration agreements with Takeda.

Drug candidates developed by the Company may require approvals or clearances from the U.S. Food and Drug Administration ("FDA") or international regulatory agencies prior to commercial sales. There can be no assurance that the Company's drug candidates will receive any of the required approvals or clearances. If the Company were to be denied approval or clearance or any such approval or clearance were to be delayed, it would have a material adverse impact on the Company.

Recently Issued Accounting Pronouncements

Effective January 1, 2018, the Company adopted ASC 606, which provides principles for recognizing revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. The Company adopted ASC 606 on a modified retrospective basis through a cumulative adjustment to equity. The impact of the adoption of the standard to prior period amounts is discussed below in Note 4, "*Research and Development Agreements"*.

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)." ASU 2016-02 requires management to record right-to-use asset and lease liability on the statement of financial position for operating leases. ASU 2016-02 is effective for annual and interim reporting periods beginning on or after December 15, 2018 and the modified retrospective approach is required. The Company is in the process of evaluating the impact the adoption of this standard would have on its consolidated financial statements and disclosures and expects the new standard to significantly increase the reported assets and liabilities on its consolidated balance sheets.

In December 2017, the SEC issued Staff Accounting Bulletin ("SAB") 118 to address the application of GAAP in situations in which a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Cuts and Jobs Act (the "Tax Act"), which was signed into law on December 22, 2017. In March 2018, the FASB issued ASU No. 2018-05, "Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118 (SEC Update)", which amended ASC 740 to incorporate the requirements of SAB 118. There were no changes in the provisional amounts recorded by the Company at December 31, 2017 related to the Tax Act. The Company continues to evaluate the impact of the Tax Act.

In June 2018, the FASB issued ASU No. 2018-07, "Stock-based Compensation: Improvements to Nonemployee Share-based Payment Accounting", which amends the existing accounting standards for share-based payments to nonemployees. This ASU aligns much of the guidance on measuring and classifying nonemployee awards with that of awards to employees. Under the new guidance, the measurement of nonemployee equity awards is fixed on the grant date. This ASU becomes effective in the first quarter of fiscal year 2019 and early adoption is permitted. Entities will apply the ASU by recognizing a cumulative-effect adjustment to retained earnings as of the beginning of the annual period of adoption. We are currently evaluating the impact that ASU 2018-07 will have on our condensed consolidated financial statements.

NOTE 2 — NET LOSS PER COMMON SHARE

Basic net loss per common share is computed by dividing net loss by the weighted-average number of common shares outstanding during the period. Diluted net loss per share is computed by giving effect to all potential dilutive common shares, including outstanding options and warrants. The following is the calculation of basic and diluted net loss per share (in thousands, except share and per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Numerator:				
Net loss attributable to common shareholders	$ 5,244	$ 11,105	$ 23,653	$ 17,183
Denominator:				
Weighted average common shares outstanding - basic and diluted	27,680,307	17,925,585	27,246,667	6,241,947
Net loss per share attributable to common shareholders:				
Basic and diluted	$ 0.19	$ 0.62	$ 0.87	$ 2.75

The following outstanding warrants and options were excluded from the computation of diluted net loss per share for the periods presented because including them would have had an antidilutive effect (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Shares issuable upon exercise of warrants	3,522	3,274	3,522	3,274
Shares issuable upon exercise of stock options	4,201	1,870	4,201	1,870

NOTE 3 — MERGER WITH PRIVATE MOLECULAR

On August 1, 2017, the Company, formerly known as Threshold, completed the Merger with Private Molecular, in accordance with the terms of the Merger Agreement. Immediately upon completion of the Merger, the former stockholders of Private Molecular held a majority of the voting interest of the combined company.

Also on August 1, 2017, in connection with, and prior to the completion of, the Merger, Threshold effected a Reverse Stock Split and changed its name from "Threshold Pharmaceuticals, Inc." to "Molecular Templates, Inc." Under the terms of the Merger, at the effective time of the Merger, the Company issued shares of its common stock to Private Molecular stockholders, at an exchange ratio of 7.7844 shares of common stock (the "Exchange Ratio"), after taking into account the Reverse Stock Split, in exchange for each share of Private Molecular common stock outstanding immediately prior to the Merger. Immediately following the closing of the Merger on August 1, 2017, the former Threshold stockholders owned approximately 34.4% of the aggregate number of shares of common stock of the Company and the former Private Molecular stockholders owned approximately 65.6% of the shares of common stock of the Company, subject to adjustments in accordance with the Merger Agreement.

All Private Molecular stock options granted under the Private Molecular stock option plan (whether or not then exercisable) outstanding prior to the effective time of the Merger were exchanged for options to purchase the Company's common stock. All outstanding and unexercised Private Molecular stock options assumed by the Company may be exercised solely for shares of the Company's common stock. The number of shares of the Company's common stock subject to each Private Molecular stock option assumed by the Company was determined by multiplying (a) the number of shares of Private Molecular common stock that were subject to such Private Molecular stock option, as in effect immediately prior to the effective time of the merger by (b) the Exchange Ratio and dividing by 11 (to account for the Reverse Stock Split); rounding the resulting number down to the nearest whole number of shares of the Company's common stock. The per share exercise price for the Company's common stock issuable upon exercise of each Private Molecular stock option assumed by the Company was determined by dividing (a) the per share exercise price of Private Molecular common stock subject to such Private Molecular stock option, as in effect immediately prior to the effective time of the Merger, by (b) the Exchange Ratio, and multiplying by 11 (to account for the Reverse Stock Split); rounding the resulting exercise price up to the nearest whole cent. The exchange of the Private Molecular stock options for the Company's stock options was treated as a modification of the awards.

Threshold equity awards issued and outstanding at the time of the Merger remained issued and outstanding. However, for accounting purposes, Threshold equity awards will be assumed to have been exchanged for equity awards of Private Molecular, the accounting acquirer. As of August 1, 2017, Threshold had outstanding stock options to purchase 963,681 shares of common stock, of which stock options to purchase 963,681 shares were vested and exercisable at a weighted average exercise price of $33.62 per share, after giving effect to the Reverse Stock Split.

Allocation of Purchase Consideration

Pursuant to business combination accounting, the Company applied the acquisition method, which requires the assets acquired and liabilities assumed be recorded at fair value with limited exceptions.

The purchase price for Threshold on August 1, 2017, the closing date of the Merger, was calculated as follows (in thousands, except per share amounts):

	August 1, 2017	
Number of shares of the combined company owned by Threshold stockholders	6,508	(1)
Multiplied by the price per share of Threshold common stock	$ 5.94	(2)
Purchase price before options	$ 38,658	
Threshold options assumed	1,006	(3)
Settlement of preexisting bridge note with Threshold	(4,010)	(4)
Total purchase price	$ 35,654	

(1) Represents the number of shares of common stock of the combined company that Threshold stockholders owned as of the closing of the Merger pursuant to the Merger Agreement. As of August 1, 2017, there were 6,508,356 shares of Threshold common stock outstanding, adjusted for the 11-for-1 reverse stock split.

(2) The fair value of Threshold common stock used in determining the purchase price was $5.94, which was derived from the $0.54 per share closing price of Threshold on August 1, 2017, the current price at the time of closing, adjusted for the 11-for-1 reverse stock split.

(3) Because the Company is considered to be the acquirer for accounting purposes, the pre-Merger vested stock options granted by Threshold under Threshold's 2014 Equity Incentive Plan are deemed to have been exchanged for equity awards of the Company and as such the portion of the acquisition date fair value of these equity awards attributable to pre-Merger service to Threshold were accounted for as a component of the consideration transferred.

(4) Represents the bridge loan outstanding as of the closing date of the Merger. As the receivable on Threshold's balance sheet was settled as part of the Merger, it is deemed to be a reduction in the purchase price.

Under the acquisition method of accounting, the total purchase price was allocated to tangible and identifiable intangible assets acquired and liabilities assumed of Threshold on the basis of their estimated fair values as of the transaction closing date on August 1, 2017.

The following table summarizes the allocation of the purchase consideration to the assets acquired and liabilities assumed based on their fair values as of August 1, 2017 (in thousands):

	August 1, 2017
Cash and cash equivalents	$ 11,216
Prepaid expenses and other current assets	945
In-process research and development (IPR&D)	26,623
Accounts payable, accrued expenses	(2,009)
Warrant liability	(1,121)
Net assets acquired	$ 35,654

The Company believes that the historical values of the Company's current assets and current liabilities approximate fair value based on the short-term nature of such items. The allocation of the purchase price is dependent on the valuation of the fair value of assets acquired and liabilities assumed. The Company does not expect any further revisions to the allocation of the purchase price.

In-Process Research and Development

The Company used the risk adjusted discounted cash flow method to value the in-process research and development intangible asset. Under the valuation method, the present value of future cash flows expected to be generated from the in-process research and development of the acquired product candidate, evofosfamide, was determined using a discount rate of 12%, and identified projected cash flows from evofosfamide were risk adjusted to take into consideration the probabilities of moving through the various clinical stages.

Transaction Costs

Transaction costs associated with the Merger of approximately $2.0 million were included in general and administrative expense in 2017.

Threshold Promissory Note

On March 24, 2017, the Company received $2.0 million from Threshold in the form of a promissory note at an interest rate of 1.0% per annum. The Company received an additional $2.0 million on June 1, 2017. The note was settled as part of the Merger.

Share Based Awards

The exchange of Private Molecular stock options for options to purchase Threshold common stock, as renamed Molecular, was accounted for as a modification of the awards because the legal exchange of the awards is considered a modification of Private Molecular stock options. The modification of the stock options did not result in any incremental compensation expense as the modification did not increase the fair value of the stock options.

Additionally, pursuant to the terms of the Merger Agreement, participants in Threshold's 2014 Equity Incentive Plan received accelerated vesting for all or a portion of their pre-Merger awards granted under such plan, as well as a modification of the exercise period. The Company recorded $1.2 million in stock-based compensation associated with the transaction.

NOTE 4 — RESEARCH AND DEVELOPMENT AGREEMENTS

Disaggregated Research and Development Revenue

Research and Development revenue is attributable to regions based on the location of our collaboration partner's parent company headquarters. Research and Development revenues disaggregated by location were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Japan	$ 1,914	$ 648	$ 3,009	$ 1,908
United States	117	—	197	500
Total Research and Development Revenue	$ 2,031	$ 648	$ 3,206	$ 2,408

Impact of Adoption of ASC 606

Effective January 1, 2018, the Company adopted ASC 606, which provides principles for recognizing revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. The Company adopted ASC 606 on a modified retrospective basis through a cumulative adjustment to stockholders' equity.

The cumulative effect of applying the new guidance of ASC 606 to all contracts with customers that were not completed as of January 1, 2018 was recorded as an adjustment to accumulated deficit as of the adoption date. As a result of applying the modified retrospective method to adopt the new revenue guidance, the following adjustments were made to accounts on the Condensed Consolidated Balance Sheet as of January 1, 2018 (in thousands):

Balance Sheet	December 31, 2017	Effect of adoption of ASC 606 (1)	January 1, 2018
Assets			
Other current assets	$ 19	$ 54	$ 73
Total assets	90,391	54	90,445
Stockholders' equity			
Accumulated deficit	(64,471)	54	(64,417)
Total liabilities and stockholders' equity	$ 90,391	$ 54	$ 90,445

(1) This impact represents the amount of revenue that would have been recognized and accounted for as unbilled revenue, during the year ended December 31, 2017.

The impact of adoption on the Company's Condensed Consolidated Statement of Operations and Comprehensive Loss for the three months ended September 30, 2018 was as follows (in thousands):

Statement of operations and comprehensive loss	As reported September 30, 2018	Effect of adoption of ASC 606 (1)	Balance without adoption of ASC 606 September 30, 2018
Research and development revenue	$ 2,031	$ 133	$ 2,164
Total revenue	6,752	133	6,885
Net loss	$ 5,244	$ 133	$ 5,111
Net loss per share	$ 0.19	$ 0.00	$ 0.19

(1) The adoption of ASC 606 resulted in a reduction in revenues recognized in the three months ended September 30, 2018. This impact represents the amount of aggregate revenue that would have been recognized during the three months ended September 30, 2018 under Previous Guidance.

The impact of adoption on the Company's Condensed Consolidated Statement of Operations and Comprehensive Loss for the nine months ended September 30, 2018 was as follows (in thousands):

Statement of operations and comprehensive loss	As reported September 30, 2018	Effect of adoption of ASC 606 (1)	Balance without adoption of ASC 606 September 30, 2018
Research and development revenue	$ 3,206	$ 54	$ 3,260
Total revenue	8,601	54	8,655
Net loss	$ 23,653	$ 54	$ 23,599
Net loss per share	$ 0.87	$ 0.00	$ 0.87

(1) The adoption of ASC 606 resulted in a reduction in revenues recognized in the nine months ended September 30, 2018. This impact represents the amount of aggregate revenue that would have been recognized during the nine months ended September 30, 2018 under Previous Guidance.

The impact of adoption on the Company's Condensed Consolidated Statement of Cash Flows for the nine months ended September 30, 2018 was as follows (in thousands):

Statement of cash flows	As reported September 30, 2018	Effect of adoption of ASC 606 (1)	Balance without adoption of ASC 606 September 30, 2018
Net loss	$ 23,653	$ 54	$ 23,599
Changes in operating assets and liabilities:			
Other current assets	(4,313)	(54)	(4,367)
Net cash used in operating activities	$ (23,859)	$ —	$ (23,859)

(1) The adoption of ASC 606 resulted in a decrease of net loss and an increase in unbilled revenue that is included in other current assets.

Contract Assets and Liabilities

Changes in the Company's contract assets and liabilities under Topic 606 were as follows (in thousands):

	September 30, 2018	December 31, 2017 (1)
Contract Assets		
Unbilled revenue	$ —	$ —
Contract Liabilities		
Deferred revenue	$ 33,023	$ 1,092

(1) December 31, 2017 balances prior to the impact related to the modified retrospective adoption of ASC 606. During the nine months ended September 30, 2018, the Company recorded $836,000 in research and development revenue that was previously included in deferred revenue at December 31, 2017. The main reason for the increase in deferred revenue during the nine months ended September 30, 2018, is the Takeda Development and License Agreement entered into during September 2018, and the increased consideration under the Takeda Individual Project Agreement.

The performance obligations are expected to be fulfilled, and revenue fully recognized, as services are rendered. The aggregate amount of the contract price of the Company's collaborative agreements allocated to performance obligations not yet satisfied is $33.6 million. During the three and nine months ended September 30, 2018, the Company recorded a cumulative catch-up adjustment to revenue of $180,000, respectively, related to a change in an estimate of the transaction price of the Takeda Individual Project Agreement.

As of September 30, 2018, the Company had receivables from customers of $31.4 million, and as of December 31, 2017, the Company had no receivables from customers.

Related Party Collaboration Agreement - Takeda Pharmaceuticals, Inc.

Takeda Collaboration Agreement

In October 2016, Private Molecular entered into a collaboration and option agreement (the "Takeda Collaboration Agreement") with Millennium Pharmaceuticals, Inc., a wholly owned subsidiary of Takeda ("Takeda"), to discover and develop CD38-targeting engineered toxin bodies ("ETBs"), which includes MT-4019 for evaluation by Takeda. Under the terms of the Takeda Collaboration Agreement, Molecular is responsible for providing to Takeda (i) new ETBs generated using Takeda's proprietary fully human antibodies targeting CD38 and (ii) MT-4019 for in vitro and in vivo pharmacological and anti-tumor efficacy evaluations. Private Molecular granted Takeda (1) a background intellectual property ("IP") license during the term of the Takeda Collaboration Agreement, and (2) an exclusive option during the term of the Takeda Collaboration Agreement and for a period of thirty days thereafter, to negotiate and obtain an exclusive worldwide license to develop and commercialize any ETB that may result from this collaboration, including MT-4019.

The Company has received payments of $2.0 million in technology access fees and cost reimbursement associated with the Company's performance obligations under the agreement.

The Company determined that the promised goods and services under the Takeda Collaboration Agreement were the background IP license, as well as the research and development services. The Company determined that there was one performance obligation, since the background IP and manufacturing were not distinct from the research and development services. Revenues are recognized over the period that the research and development services occur. The Company also concluded that, since the option for the exclusive license is deemed to be at fair value that the option does not provide the customer with a material right, and should be accounted for if and when the option is exercised. All research and development services were performed as of September 30, 2018.

During the three months ended September 30, 2018 and 2017, the Company recorded research and development revenue from Takeda of $0 and $648,000, respectively, under the Takeda Collaboration Agreement. During the nine months ended September 30, 2018 and September 30, 2017, the Company recorded research and development revenue from Takeda of $92,000 and $1.9 million, respectively, under the Takeda Collaboration Agreement. This revenue is deemed to be revenue from a related party (as discussed further in Note 5 "Related Party Transactions").

Takeda Individual Project Agreement

In connection with the Takeda Collaboration Agreement, the Company entered into an Individual Project Agreement (the "Takeda Individual Project Agreement") with Takeda in June 2018, that was subsequently amended in July 2018. Under the Takeda Individual Project Agreement, the Company is responsible to perform certain research and development services relating to Chemistry, Manufacturing, and Controls ("CMC") work for three potential lead ETBs targeting CD38. In consideration of these services, the Company will receive up to $2.2 million in compensation that includes an increase in transaction consideration of $1.1 million as a result of the amendment to the Takeda Individual Project Agreement in July 2018.

During the three and nine months ended September 30, 2018, the Company recognized research and development revenue from Takeda of $1.2 million and $1.9 million, respectively, under the Takeda Individual Project Agreement. No revenue was recognized during the three and nine months ended September 30, 2017 since the agreement was not in place. As of September 30, 2018, $1.2 million was due from Takeda under the Development and License Agreement.

Takeda Development and License Agreement

On September 18, 2018, the Company entered into a Development and License Agreement with Takeda ("Takeda Development and License Agreement") for the development and commercialization of products incorporating or comprised of one or more CD38 SLT-A fusion proteins ("Licensed Products") for the treatment of patients with diseases such as multiple myeloma.

Pursuant the Takeda Development and License Agreement Takeda made an upfront payment of $30.0 million to the Company in October 2018.

The Takeda Development and License Agreement also provides for development costs to be shared equally between the Company and Takeda during the Early Stage Development Period. The Company has an option to opt into co-development after the Early Stage Development, that would make the Company eligible to potentially receive higher milestone payments and a higher royalty percentage.

In addition to the upfront fee, if the Company exercises its co-development option and funds its share of development costs, it is eligible to receive pre-clinical and clinical development milestone payments of up to $307.5 million, upon the achievement of certain development milestones and regulatory approvals; and sales milestone payments of up to $325.0 million, upon the achievement of certain sales milestone events. If the Company does not exercise its co-development option, it is eligible to receive development milestone payments of up to $162.5 million upon the achievement of certain development milestones and regulatory approvals; and sales milestone payments of up to $175.0 million upon the achievement of certain sales milestone events. The Company will also be entitled to receive tiered royalties, subject to certain reductions, as percentages of annual aggregate net sales, if any, of Licensed Products. The royalty percentages would range from low double-digits to low twenties if the Company exercises its option to co-develop, and from high-single digits to low teens if the Company does not exercise its option to co-develop.

The Company identified one performance obligation at the inception of the Takeda Development and License Agreement, the research and development services for the CD38 ETBs, including manufacturing. The Company determined that research, development and commercialization license and the participation in the committee meetings are not distinct from the research and development services and therefore those promised services were combined into one combined performance obligation.

The total transaction price of $29.3 million, consisting of the (1) $30.0 million upfront payment, (2) a $10.0 million development milestone payment that is deemed probable of being achieved, (3) minus $10.7 million in expected co-share payment payable to Takeda during Early Stage Development. The expected co-share payment is considered variable consideration, and the Company applied a constraint using the expected value method. Significant judgement was involved in determining transaction consideration, including the determination of the variable consideration, including the constraint on consideration.

The Company determined that the initial $10.0 million potential development milestone payment under the Development and License Agreement is probable of being achieved. Therefore, this payment was included in the transaction consideration. As of September 30, 2018, the other potential development milestones and sales milestones are not currently deemed probable of being achieved, as they are dependent on factors outside the Company's control. Therefore, these future development milestones and sales-based milestone payments have been fully constrained and are not included in the transaction price as of September 30, 2018.

The Company recognizes revenue using a cost-based input measure. In applying the cost-based input method of revenue recognition, the Company used actual costs incurred relative to budgeted costs expected to be incurred for the combined performance obligation. These costs consist primarily of internal employee efforts and third-party contract costs. Revenue is recognized based on actual costs incurred as a percentage of total budgeted costs as the Company completes its performance obligation over the estimated service period.

The Company recognized revenue of $253,000 during the three and nine months ended September 30, 2018, respectively, related to theTakeda Development and License Agreement. During the three and nine months ended September 30, 2017, the Company recorded no research and development revenue under the Development Agreement, since the agreement was not in place. As of September 30, 2018, deferred revenue related to the performance obligation was $28.8 million. As of September 30, 2018, $30.0 million was due from Takeda under the Development and License Agreement, that the Company received in October 2018.

Takeda Multi-Target Agreement

In June 2017, Private Molecular entered into a Multi-Target Collaboration and License Agreement with Takeda ("Takeda Multi-Target Agreement") in which Molecular agreed to collaborate with Takeda to identify and generate ETBs, against two targets designated by Takeda. Takeda designated certain targets of interest as the focus of the research. Each party granted to the other nonexclusive rights in its intellectual property for purposes of the conduct of the research, and Private Molecular agreed to work exclusively with Takeda with respect to the designated targets.

Under the Takeda Multi-Target Agreement, Takeda has an option during an option period to obtain an exclusive license under the Company's intellectual property to develop, manufacture, commercialize and otherwise exploit ETBs against the designated targets. The option period for each target ends three months after the completion of the evaluation of such designated target. Under the Takeda Multi-Target Agreement, both parties have the right to terminate the agreement, with a specified notice period.

The Company received an upfront fee of $1.0 million and an additional $2.0 million following the designation of each of the two targets in December 2017. As of September 30, 2018, the Company has received $5.0 million from Takeda pursuant to the Takeda Multi-Target Agreement.

The Company may also receive an additional $25.0 million in aggregate through the exercise of the option to license ETBs. Additionally, the Company may also be entitled to receive clinical development milestone payments of up to approximately $397.0 million, for achievement of development milestones and regulatory approval of collaboration products under the Takeda Development Agreement. The Company may also be entitled to receive commercial milestone payments of up to $150.0 million, for achievement of pre-specified sales milestones related to net sales of all collaboration products under the Takeda Development Agreement. The Company is also entitled to tiered royalty payments of a mid-single to low-double digit percentage of net sales of any licensed ETBs, subject to certain reductions. Finally, the Company is entitled to receive up to $10.0 million in certain contingency fees.

The Takeda Multi-Target Agreement will expire on the expiration of the option period (within three months after the completion of the evaluation of each designated target) for the designated targets if Takeda does not exercise its options, or, following exercise of the option, on the later of the expiration of patent rights claiming the licensed ETB or ten years from first commercial sale of a licensed ETB. The Takeda Multi-Target Agreement may be sooner terminated by Takeda for convenience or upon a material change of control, or by either party for an uncured material breach of the agreement.

The Company evaluated the contract termination clause and concluded that it was a non-substantive termination provision. As such, an initial contract term was defined as the length of the termination notice period, with a deemed renewal option to continue the research and development services over the remainder of the contract term as a material right.

The Company determined that the promised goods and services under the Takeda Multi-Target Agreement were the background IP license, the research and development services, and manufacturing during the initial contract period; and a renewal option to continue the research and development services. The Company determined that there were two performance obligations; research and development services, and the renewal options. Since the background IP and manufacturing were not distinct from the research and development services, they were deemed to be one performance obligation. Transaction consideration was allocated to each of the performance obligation using an estimate of the standalone selling price, and revenues are recognized over the period that the research and development services occur. The Company also concluded that, since the option for the exclusive license is deemed to be at fair value that the option does not provide the customer with a material right, and should be accounted for if and when the option is exercised.

In connection with the execution of the Takeda Multi-Target Agreement, Takeda also entered into a stock purchase agreement with the Company ("Takeda Stock Purchase Agreement"), pursuant to which Takeda purchased approximately $20.0 million of shares of the Company's common stock following the Merger. See Note 10, "Stockholders' Equity" for further details. Since the Takeda Stock Purchase Agreement was dependent on contingent events, the Company determined that the transaction was constrained, and not a performance obligation under the Takeda Multi-Target Agreement. The Company accounted for the stock purchase agreement in August 2017, once the constraints were removed, and recorded the $20.0 million in equity upon the settlement of the stock purchase transaction.

During the three and nine months ended September 30, 2018, the Company recorded $415,000 and $755,000, respectively, in research and development revenue under the Multi-Target Takeda Agreement. During the three and nine months ended September 30, 2017, the Company recorded no research and development revenue under the Multi-Target Takeda Agreement, since the agreement had not been entered into.

Other Collaboration Agreements

In September 2016, Private Molecular entered into a collaboration agreement with an undisclosed pharmaceutical company ("Other Collaboration Agreement") to generate ETBs, for evaluation for consideration of $500,000. Under the terms of the Other Collaboration Agreement, Private Molecular was responsible for providing to the customer (i) new ETBs generated using the customer's materials and (ii) ETB study molecules for testing and evaluation.

The customer also exercised an option under the Other Collaboration Agreement in November 2017, for the manufacture of additional quantities of ETB molecules, for additional consideration of $250,000, upon delivery and acceptance of the additional materials.

The Company determined that at the inception of the agreement, the promised goods and services under the Other Collaboration Agreement were, the research and development services, and manufacturing. The Company determined that there was one performance obligation, since the manufacturing was not distinct from the research and development services. Revenues are recognized over the period that the research and development services occur using an input method to measure progress towards satisfaction of the performance obligation. The option for additional ETB molecules was determined to be at fair value and was accounted for once the option was exercised. All research and development services were performed as of September 30, 2018.

During the three months ended September 30, 2018 and 2017, the Company recorded $117,000 and zero in research and development revenue under the Other Collaboration Agreement, respectively. During the nine months ended September 30, 2018 and 2017, the Company recorded $196,000 and $500,000 in research and development revenue under the Other Collaboration Agreement, respectively.

Grant Agreements

The Company receives funds from a state grant funding program, which is a conditional cost reimbursement grant, and revenue is recognized as allowable costs are paid.

In November 2011, Private Molecular was awarded a $10.6 million product development grant from the Cancer Prevention Research Institute of Texas ("CPRIT") for its CD20-targeting ETB MT-3724. To date, Private Molecular has received $9.5 million in grant funds.

On September 18, 2018, the Company entered into a Cancer Research Grant Contract (the "CPRIT Agreement") with CPRIT, in connection with a grant of approximately $15.2 million awarded by CPRIT to the Company to fund research of a cancer therapy involving a CD38 targeting ETB. Pursuant to the CPRIT Agreement, the Company may also use such funds to develop a replacement CD38 targeting ETB, with or without a partner.

During the three months ended September 30, 2018 and 2017, the Company recorded $4.7 million and zero in grant revenue under these awards, respectively. During the nine months ended September 30, 2018 and 2017, the Company recorded $5.4 million and $167,000 in grant revenue under these awards, respectively. Amounts collected in excess of revenue recognized are recorded as deferred revenue.

NOTE 5 — RELATED PARTY TRANSACTIONS

Takeda Collaboration and Stock Purchase

In connection with and immediately following the transactions consummated pursuant to the Takeda Stock Purchase Agreement described in Note 4, "Research and Development Agreements", Takeda became a related party. Refer to Note 4, "Research and Development Agreements" for more details about the Takeda Development and License Agreement, Takeda Collaboration Agreement, Takeda Individual Project Agreement, and the Takeda Multi-Target Agreement. Refer to Note 10, "Stockholders' Equity", for more detail about the Takeda Stock Purchase Agreement.

Private Placement

Following the Private Placement described in Note 10, "Stockholders' Equity" below, Longitude Venture Partner III, L.P. ("Longitude") and CDK Associates, L.L.C. ("CDK") became related parties, with Longitude and CDK beneficially owning 15.3% and 4.99% of the Company, respectively, following investments of $20.0 million and $7.0 million, respectively. The ownership of CDK is subject to a 4.99% ownership blocker, pursuant to which shares of the Company's common stock may not be issued pursuant to the warrant held by CDK to the extent that the issuance of the common stock subject to such issuance would cause CDK to beneficially own more than 4.99% of the Company's outstanding common stock. Scott Morenstein, a director of the Company is a Managing Director of Caxton Alternative Management LP, the investment manager of CDK. David Hirsch, a director of the Company, is a member of Longitude Capital Partners III, LLC, the general partner of Longitude. Furthermore, Kevin Lalande, a director of the Company is affiliated with Sante Health Ventures I, L.P. and Sante Heath Ventures Annex Fund, L.P., which are both stockholders of the Company and were investors in the Private Placement. Finally, Excel Venture Fund II, L.P., a stockholder of the Company beneficially owning greater than 5% of the Company, invested approximately $333,000 in the Private Placement.

Public Offering

Following the Public Offering described in Note 10, "Stockholders' Equity" below, BVF Partners L.P. ("BVF") became a related party, owning 7.6% of the Company, following investments of $15.3 million.

BVF is not affiliated with any director or executive officer of the Company. Longitude Venture Partners III, L.P. and CDK, current stockholders of the Company, purchased 365,000 and 545,454 shares of common stock, respectively, in the Public Offering at the public offering price. Scott Morenstein, a director of the Company is a Managing Director of Caxton Alternative Management LP, the investment manager of CDK. David Hirsch, a director of the Company, is a member of Longitude Capital Partners III, LLC, the general partner of Longitude.

NOTE 6 —MARKETABLE SECURITIES AND FAIR VALUE MEASUREMENTS

The Company accounts for its marketable securities in accordance with ASC 820*"Fair Value Measurements and Disclosures."* ASC 820 defines fair value, establishes a framework for measuring fair value in U.S. GAAP, and expands disclosures about fair value measurements. ASC 820 defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels of inputs that may be used to measure fair value:

Level 1—Quoted prices in active markets for identical assets or liabilities.

Level 2—Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company utilizes the market approach to measure fair value for its financial assets and liabilities. The market approach uses prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities. For Level 2 securities that have market prices from multiples sources, a "consensus price" or a weighted average price for each of these securities can be derived from a distribution-curve-based algorithm which includes market prices obtained from a variety of industrial standard data providers (e.g. Bloomberg), security master files from large financial institutions, and other third-party sources. Level 2 securities with short maturities and infrequent secondary market trades are typically priced using mathematical calculations adjusted for observable inputs when available.

The following table sets forth the Company's financial assets (cash equivalents and marketable securities) at fair value on a recurring basis as of September 30, 2018 and December 31, 2017 (in thousands):

		Basis of Fair Value Measurements		
	Fair Value as of September 30, 2018	Level 1	Level 2	Level 3
Money market funds	$ 76,373	$ 76,373	$ —	$ —

	Fair Value as of December 31, 2017	Basis of Fair Value Measurements		
		Level 1	Level 2	Level 3
Money market funds	$ 51,751	$ 51,751	$ —	$ —

The Company invests in highly-liquid, investment-grade securities. The following is a summary of the Company's available-for-sale securities at September 30, 2018 and December 31, 2017 (in thousands):

As of September 30, 2018	Cost Basis	Unrealized Gain	Unrealized Loss	Fair Value
Money market funds	$ 76,373	$ —	$ —	$ 76,373
Less cash equivalents	(76,373)	—	—	(76,373)
Total marketable securities	$ —	$ —	$ —	$ —

As of December 31, 2017	Cost Basis	Unrealized Gain	Unrealized Loss	Fair Value
Money market funds	$ 51,751	$ —	$ —	$ 51,751
Less cash equivalents	(51,751)	—	—	(51,751)
Total marketable securities	$ —	$ —	$ —	$ —

There were no realized gains or losses in the three and nine months ended September 30, 2018 and 2017, respectively.

The following table sets forth the Company's financial liabilities measured at fair value on a recurring basis as of the date indicated below:

	Fair Value as of September 30, 2018	Basis of Fair Value Measurements		
		Level 1	Level 2	Level 3
2017 Warrants	38	—	—	38

	Fair Value as of December 31, 2017	Basis of Fair Value Measurements		
		Level 1	Level 2	Level 3
2017 Warrants	954	—	—	954

The Company determined the fair value of the liability associated with its 2017 Warrants to purchase in aggregate 377,273 shares of outstanding common stock using a Black-Scholes Model. See detailed discussion in Note 10, "Stockholders' Equity".

As of September 30, 2018 and December 31, 2017 the fair value of the long-term debt, payable in installments through years ended 2022 and 2019, respectively, approximated its carrying value of $3.2 million and $3.5 million, respectively, because it is carried at a market observable interest rate, which are considered Level 2.

NOTE 7 — BALANCE SHEET COMPONENTS

Accrued liabilities were comprised of the following (in thousands):

	September 30, 2018	December 31, 2017
Accrued liabilities:		
General and administrative	$ 848	$ 374
Clinical trial related costs	1,441	702
Non-clinical research and manufacturing operations	3,078	435
Payroll related	1,204	1,149
Other accrued expenses	24	30
Total accrued liabilities	$ 6,595	$ 2,690

Deferred revenue was comprised of the following:

	September 30, 2018	December 31, 2017
Deferred revenue:		
Grant agreements	$ 377	$ 1,673
Research and development agreements	33,023	1,092
Total deferred revenue	$ 33,400	$ 2,765

NOTE 8 — BORROWING ARRANGEMENTS

SVB Growth Capital Loan

In April 2014, the Company entered into a loan and security agreement (the "Loan Agreement") with Silicon Valley Bank ("SVB") that was subsequently amended, to provide for (1) growth capital advances to the Company of up to $6.0 million over three tranches based on corporate milestones; (2) term loans of up to $6.0 million in the aggregate (the "Growth Capital Loan"); (3) warrants to purchase 48,874 shares of the Company's common stock at an exercise price of $3.07 per share; and (4) a final fee of $375,000 due at the loan maturity date in addition to the principal and interest payments.

The Company drew down $0.8 million and $2.3 million in May and June 2015, respectively, and issued warrants to purchase 14,254 and 17,310 shares of the Company's common stock at an exercise price of $3.07 per share. The Company drew down $3.0 million in April 2016 and issued warrants to purchase 17,310 shares of the Company's common stock at an exercise price of $3.07 per share. The warrants issued in the Loan Agreement became exercisable upon issuance and were converted into common stock upon the closing of the Merger.

As of December 31, 2017, the Company had received $6.0 million in the aggregate from the Growth Capital Loan. The Company was required to repay the outstanding principal in 30 equal installments beginning November 1, 2016 and was due in full on April 30, 2019. Interest accrued at a rate of 1.19% above prime, or 5.44% per annum, as of December 31, 2017. Interest only payments were made monthly and beginning November 1, 2016, the Company paid the first of 30 consecutive equal monthly payments of principal plus interest.

The Company paid down the Growth Capital Loan on February 27, 2018, from the proceeds of the Perceptive Credit Facility, discussed below. Until the termination of the Growth Capital Loan on February 27, 2018, the Company paid $3.2 million in principal, $375,000 in a final fee, and $42,000 in interest during the nine months ended September 30, 2018 and $1.8 million in principal and $187,000 in interest in the nine months ended September 30, 2017.

As of September 30, 2018 the Growth Capital Loan had been repaid, and the balance was zero. As of December 31, 2017, the Growth Capital Loan principal balance was 3.5 million.

Perceptive Credit Facility

On February 27, 2018, the Company entered into a term loan facility with Perceptive Credit Holdings II, LP ("Perceptive") in the amount of $10.0 million (the "Perceptive Credit Facility"). The Perceptive Credit Facility consists of a $5.0 million term loan, which was drawn on the effective date of the Perceptive Credit Facility, and an additional $5.0 million term loan to be drawn six months following the effective date of the Perceptive Credit Facility (as discussed above). The Company used a portion of the proceeds from the Perceptive Credit Facility to pay off the existing debt facility with SVB. Borrowings under the Perceptive Credit Facility are secured by all of the property and assets of the Company. The principal on the facility accrues interest at an annual rate equal to a three-month LIBOR plus the Applicable Margin. The Applicable Margin is 11.00%. Upon the occurrence, and during the continuance, of an event of default, the Applicable Margin, defined above, will be increased by 4.00% per annum. The interest rate at September 30, 2018 was 13.3%. Payments for the first 24 months are interest only and are paid quarterly. After the second anniversary of the closing date of the Perceptive Credit Facility, principal payments of $200,000 are due each calendar quarter, with a final payment of $3.4 million due on February 27, 2022. This term loan facility matures on February 27, 2022 and includes both financial and non-financial covenants, including a minimum cash balance requirement. The Company is required to pay an exit fee of $100,000 on a pro rata basis on the maturity date or the earlier date of repayment of the term loans in full. The exit fee is being accreted to interest expense over the term of the Perceptive Credit Facility using the effective interest method.

For the three months ended September 30, 2018, the Company recorded $170,000 of interest expense and $65,000 of amortization of debt discount related to the Perceptive Credit Facility. For the nine months ended September 30, 2018, the Company recorded $398,000 of interest expense and $146,000 of amortization of debt discount related to the Perceptive Credit Facility. For the three and nine months ended September 30, 2017, the Company did not incur any interest expense related to the Perceptive Credit Facility, since the facility was not in place at that time.

In connection with the Perceptive Credit Facility, on February 27, 2018 the Company issued Perceptive a warrant to purchase 190,000 shares of the Company's common stock. The warrant is exercisable for a period of seven years from the date of issuance at an exercise priceper share of $9.5792, subject to certain adjustments as specified in the Warrant. See Note 10, "Stockholders' Equity" for further discussion of the warrant.The fair value of the warrant of $1.5 million was recorded as a debt discount, which is being amortized to interest expense over the term of the Perceptive Credit Facility using the effective interest method

As of September 30, 2018 and December 31, 2017 the Perceptive Credit Facility principal balance was $5.0 million and zero, respectively. As of September 30, 2018, the Company was in compliance with the non-financial covenants of the Perceptive Credit Facility.

Future required principal and final payments on the Perceptive Credit Facility were as follows as of September 30, 2018:

2018 (remaining)	$	—
2019		—
2020		800
2021		800
2022		3,500
Total debt		5,100
Debt discount and deferred finance costs		(1,945)
Total debt, net	$	3,155

NOTE 9 — COMMITMENTS AND CONTINGENCIES

The Company is obligated under operating lease agreements covering the Company's office facilities in Austin, Texas and Jersey City, New Jersey. Facilities expense under the operating leases was approximately $378,000 and $182,000 for the three months ended September 30, 2018 and 2017, respectively, and $1.0 million and $387,000 for the nine months ended September 30, 2018 and 2017, respectively.

Future minimum payments due under the operating lease agreements at September 30, 2018 were as follows (in thousands):

2018 (remaining)	$	287
2019		1,135
2020		1,048
2021		1,074
2022		1,096
Thereafter		486
Total	$	5,126

The Company leases laboratory equipment under non-cancelable capital lease agreements. As of September 30, 2018 and December 31, 2017, laboratory equipment under capital leases included in property and equipment totaled approximately $237,000 and $171,000, respectively, net of accumulated amortization of approximately $100,000 and $66,000, respectively. Future minimum capital lease payments consisted of the following at September 30, 2018 (in thousands):

2018 (remaining)	$	12
2019		33
2020		19
Total future minimum capital lease payments		64
Less: amount representing interest		(4)
Total capital lease obligations		60
Current portion of lease obligations		(34)
Capital lease obligations, non-current portion	$	26

Contingencies

In the ordinary course of business, the Company may provide indemnifications of varying scope and terms to vendors, lessors, business partners and other parties with respect to certain matters, including, but not limited to, losses arising out of the Company's breach of such agreements, services to be provided by or on behalf of the Company, or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with its directors and certain of its officers and employees that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers or employees. The Company maintains director and officer insurance, which may cover certain liabilities arising from its obligation to indemnify its directors and certain of its officers and employees, and former officers and directors in certain circumstances. The Company maintains product liability insurance and comprehensive general liability insurance, which may cover certain liabilities arising from its indemnification obligations. It is not possible to determine the maximum potential amount of exposure under these indemnification obligations due to the limited history of prior indemnification claims and the unique facts and circumstances involved in each particular indemnification obligation. Such indemnification obligations may not be subject to maximum loss clauses. Management is not currently aware of any matters that could have a material adverse effect on the financial position, results of operations or cash flows of the Company.

NOTE 10 — STOCKHOLDERS' EQUITY

Private Placement

On August 1, 2017, the Company entered into the a securities purchase agreement with Longitude Venture Partners III, L.P. and certain other accredited investors (the "Longitude Securities Purchase Agreement"), pursuant to which the Company sold an aggregate of 5,793,063 units (the "Units") accredited investors having an aggregate purchase price of $40.0 million, each such Unit consisting of (i) one (1) share (the "Shares") of the Company's common stock and (ii) a warrant (the "Private Placement Warrants") to purchase 0.5 shares of the Company's common stock (the "Private Placement"). The Private Placement was pursuant to equity commitment letter agreements entered into by and between the Company and investors in March and June 2017. The purchase price per Unit was $6.9048. The Warrants are exercisable for a period of seven years from the date of their issuance at a per-share exercise price of $6.8423 (which exercise price shall be payable in cash or through a cashless exercise mechanic), subject to certain adjustments as specified in the Warrants. At September 30, 2018, there were warrants outstanding under the Longitude Securities Purchase Agreement to purchase 2,896,532 shares of common stock. At the time of issuance and as of September 30, 2018, the warrants met the requirements for equity classification under ASC 815, "Derivatives and Hedging" (ASC 815), and the value of these warrants is included in additional paid-in capital on the balance sheet. The Private Placement Warrants are exercisable upon issuance and expire August 1, 2024. The Company will continue to evaluate equity classification on a quarterly basis.

In December 2015, the Company entered into an agreement (the "Wedbush Agreement") with Wedbush Securities Inc. ("Wedbush"), which was subsequently amended in December of 2017, related to Wedbush's services associated with the equity financing under the Longitude Securities Purchase Agreement. As part of the Wedbush Agreement, the Company issued to Wedbush warrants to purchase 57,930 shares of the Company's common stock (the "Wedbush Warrants"). The Wedbush Warrants are exercisable for a period of seven years from the date of their issuance at a per-share exercise price of $6.8423 (which exercise price shall be payable in cash or through a cashless exercise mechanic), subject to certain adjustments as specified in the Wedbush Warrants. At September 30, 2018, there were warrants outstanding under the Wedbush Agreement to purchase 57,930 shares of common stock. The warrants met the requirements for equity classification under ASC 815, and the value of these warrants is included in additional paid-in capital on the balance sheet. The Wedbush Warrants are exercisable upon issuance and expire December 1, 2024.The Company will continue to evaluate equity classification on a quarterly basis.

Subsequent Private Placement

In connection with the execution of the Takeda Multi-Target Agreement, Threshold and Private Molecular entered into the Takeda Stock Purchase Agreement. Pursuant to the Takeda Stock Purchase Agreement, following the consummation of the Merger and the Private Placement, Takeda purchased 2,922,993 shares of the Company's common stock, at a price per share of $6.84, for an aggregate purchase price of $20.0 million.

Public offering

On September 25, 2018, the Company closed its underwrittenpublic offering (the "Public Offering") of 9,430,000 shares of its common stock, which included the exercise in full by the underwriters of their option to purchase 1,230,000 additional shares of common stock, at a price to the public of $5.50 per share. The net proceeds to the Company from the offering, after deducting the underwriting discounts and commissions and offering expenses payable by the Company, were approximately $48.1 million.

Common Stock Warrants

As of September 30, 2018, the Company had warrants outstanding to purchase 3,521,735 shares of the Company's common stock. The Company accounts for certain of its common stock warrants under guidance in ASC 480 that clarifies the determination of whether an instrument is classified as a liability or equity. The following table summarizes the Company's outstanding warrants as of September 30, 2018 and December 31, 2017 and the warrant activity during the nine months ended September 30, 2018:

	Warrants Outstanding December 31, 2017	Issued	Exercised	Warrants Outstanding September 30, 2018	Weighted Average Exercise Price
2017 Warrants	377,273	—	—	377,273	$ 39.82
2017 Private Placement Warrants	2,954,462	—	—	2,954,462	$ 6.84
2018 Warrants	—	190,000	—	190,000	$ 9.58
	3,331,735	190,000	—	3,521,735	

On August 1, 2017, as part of the Merger, the Company assumed the warrant liability of the predecessor Threshold, related to warrants to purchase 377,273 shares of the Company's common stock ("2017 Warrants"), with an exercise price of $39.82 per share. Refer to Note 3, "Merger with Private Molecular", for further detail about the Merger.

Due to change in control provisions outside of the Company's control in the 2017 Warrants, the guidance requires the Company's outstanding warrants to be classified as liabilities and to be fair valued at each reporting period, with the changes in fair value recognized as change in fair value of warrant liabilities in the Company's consolidated statements of operations and comprehensive loss.

The following table is a reconciliation of the 2017 Warrant liability measured at fair value using level 3 inputs (in thousands):

	Warrant Liability
Balance at December 31, 2017	$ 954
Change in fair value during the nine months ended September 30, 2018	(916)
Balance at September 30, 2018	$ 38

The fair value of the 2017 Warrants on September 30, 2018 and December 31, 2017 was determined using a Black-Scholes model with the following key level 3 inputs:

	September 30, 2018	December 31, 2017
Risk-free interest rate	2.81 %	1.89 %
Expected life (in years)	1.39	2.13
Dividend yield	—	—
Volatility	82 %	103 %
Stock price	$ 5.39	$ 10.02

During the nine months ended September 30, 2018 the change in fair value of $916,000 of noncash income related to the 2017 Warrants was recorded as change in fair value of warrant liabilities in the Company's consolidated statement of operations and comprehensive loss. Significant changes in the level 3 inputs of volatility, stock price and expected life, used in the fair value measurement of the 2017 Warrants in isolation could result in a material change in the fair value measurement.

On August 1, 2017, in conjunction with the Private Placement, the Company issued warrants to purchase 2,896,532 shares of the Company's common stock with an exercise price of $6.84, the Private Placement Warrants as described above. The Private Placement warrants are classified as equity and were valued at $16.3 million using the Black-Scholes model, and recorded in additional paid-in capital. The Black-Scholes inputs used were: expected dividend rate of 0%, expected volatility of 147%, risk free interest rate of 2.07%, and expected term of 7.0 years.

In December 2017, the Company issued warrants to purchase 57,930 shares of the Company's common stock with an exercise price of $6.84, the Wedbush Warrants as described above. The Wedbush Warrants are classified as equity and recorded in additional paid-in capital; and were valued at $0.4 million using the Black-Scholes model. The Black-Scholes inputs used were: expected dividend rate of 0%, expected volatility of 108%, risk free interest rate of 2.33%, and expected term of 7.0 years. The Wedbush Warrants together with the Private Placement Warrants are combined as "2017 Private Placement Warrants" in the table above.

On February 28, 2018, in connection with the Perceptive Credit Facility, the Company issued warrants to purchase 190,000 shares of the Company's common stock with an exercise price of $9.58 (the "2018 Warrants"). The 2018 Warrants are exercisable for a period of seven years from the date of issuance, subject to certain adjustments as specified in the Warrants. The 2018 Warrants were classified as equity and recorded in additional paid-in capital; and were valued at $1.5 million using the Black-Scholes model. The Black-Scholes inputs used were: expected dividend rate of 0%, expected volatility of 105%, risk free interest rate of 2.83%, and expected term of 7.0 years. See Note 8, "Borrowing Arrangements", for further detail about the Perceptive Credit Facility.

NOTE 11 — STOCK-BASED COMPENSATION

The Company recognizes stock-based compensation in accordance with ASC 718, "Compensation—Stock Compensation." Stock-based compensation expense, which consists of the compensation cost for employee stock options granted under the 2009 Stock Plan, as amended (the "2009 Stock Plan"), the Company's 2014 Equity Incentive Plan, as amended (the "2014 Equity Incentive Plan"), the Company's 2018 Equity Incentive Plan (the "2018 Equity Incentive Plan") and the value of options issued to non-employees for services rendered, was allocated to research and development and general and administrative expenses in the unaudited consolidated statements of operations. Stock-based compensation for the three and nine months ended September 30, 2018 and 2017 were (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Research and development	$ 331	$ 312	$ 827	$ 312
General and administrative	866	1,066	1,935	1,118
Total stock-based compensation	$ 1,197	$ 1,378	$ 2,762	$ 1,430

Valuation Assumptions

The Company estimated the fair value of stock options granted using the Black-Scholes option-pricing formula and a single option award approach. This fair value is being amortized ratably over the requisite service periods of the awards, which is generally the vesting period. The fair value of employee stock options was estimated using the following weighted-average assumptions for the three and nine months ended September 30, 2018 and 2017:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Employee Stock Options:				
Risk-free interest rate	3.01 %	1.85 %	2.79 %	1.85 %
Expected term (in years)	6.07	6.09	6.03	6.05
Dividend yield	—	—	—	—
Volatility	109 %	113 %	107 %	111 %
Weighted-average fair value of stock options granted	$ 4.50	$ 5.57	5.82	$ 5.40

To determine the expected term of the Company's employee stock options granted, the Company utilized the simplified approach as defined by SEC Staff Accounting Bulletin No. 107, "Share-Based Payment" ("SAB 107"). To determine the risk-free interest rate, the Company utilized an average interest rate based on U.S. Treasury instruments with a term consistent with the expected term of the Company's stock-based awards. To determine the expected stock price volatility for the Company's stock-based awards, the Company utilized the historical volatility of the Company's common stock. The fair value of all the Company's stock-based awards assumes no dividends as the Company does not anticipate paying cash dividends on its common stock.

Employee Stock-based Compensation Expense

As required by ASC 718, the Company recognized $1.2 million and $2.8 million of stock-based compensation expense related to stock options under the Company's equity incentive plans for the three and nine months ended September 30, 2018, respectively, and $1.4 million and $1.4 million for the three and nine months ended September 30, 2017.

As of September 30, 2018, the total unrecognized compensation cost related to unvested stock-based awards granted to employees under the Company's equity incentive plans was approximately $14.2 million. This cost will be recorded as compensation expense on a ratable basis over the remaining weighted average requisite service period of approximately 3.1 years.

Equity Incentive Plans

The Company's equity incentive plans include the 2009 Stock Plan, the 2014 Equity Incentive Plan and the 2018 Equity Incentive Plan. No additional shares will be issued under the 2009 Stock Plan and the 2014 Equity Incentive Plan.

The following table summarizes stock option activity under the Company's equity incentive plans:

Options	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value (in millions)
Outstanding at December 31, 2017	2,768,711	$ 12.07	5.6	$ 11.0
Granted	1,783,287	$ 7.05	—	—
Exercised	(167,786)	$ 0.94	—	—
Forfeitures	(182,770)	$ 20.40	—	—
Outstanding at September 30, 2018	4,201,442	$ 10.02	7.1	$ 3.4
Exercisable at September 30, 2018	1,556,112	$ 14.36	3.1	$ 3.3

The total intrinsic value of stock options exercised during the three and nine months ended September 30, 2018, was $4,000 and $1.6 million, respectively, as determined at the date of the option exercise. Cash received from stock option exercises was $2,000 and $157,000 for the three and nine months ended September 30, 2018, respectively. Cash received from stock options exercises was $14,000 and $14,000 for the three and nine months ended September 30, 2017. The Company issues new shares of common stock upon exercise of options. In connection with these exercises, there was no tax benefit realized by the Company due to the Company's current loss position.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with the unaudited financial information and the notes thereto included in this Quarterly Report on Form 10-Q and the audited financial information and the notes thereto included in the Annual Report on Form 10-K for the year ended December 31, 2017.

Certain matters discussed in this Quarterly Report on Form 10-Q may be deemed to be forward-looking statements that involve risks and uncertainties. We make such forward-looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. In this Quarterly Report on Form 10-Q, words such as "may," "will," "anticipate," "estimate," "expects," "projects," "intends," "plans," "believes" and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) are intended to identify forward-looking statements.

Our actual results and the timing of certain events may differ materially from the results discussed, projected, anticipated, or indicated in any forward-looking statements. We caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate may differ materially from the forward-looking statements contained in this Quarterly Report. In addition, even if our results of operations, financial condition and liquidity, and the development of the industry in which we operate are consistent with the forward-looking statements contained in this Quarterly Report, they may not be predictive of results or developments in future periods.

The following information and any forward-looking statements should be considered in light of factors discussed elsewhere in this Quarterly Report on Form 10-Q and under "Risk Factors" in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2017.

We caution readers not to place undue reliance on any forward-looking statements made by us, which speak only as of the date they are made. We disclaim any obligation, except as specifically required by law and the rules of the SEC, to publicly update or revise any such statements to reflect any change in our expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

You should read the following discussion and analysis of financial condition and results of operations together with Part I Item 1 "Financial Statements," which includes our financial statements and related notes, elsewhere in this Quarterly Report on Form 10-Q.

Overview

We are a clinical-stage oncology company focused on the discovery and development of engineered toxin bodies, or ETBs, which are differentiated, targeted, biologic therapeutics for cancer. We believe ETBs offer a differentiated mechanism of action that may address some of the limitations associated with currently available cancer therapeutics. ETBs utilize a genetically engineered form of Shiga-like Toxin A subunit, or SLTA, a ribosome inactivating bacterial protein that can be targeted to specifically destroy cancer cells.

Business

We are a clinical-stage oncology company focused on the discovery and development of differentiated, targeted, biologic therapeutics for cancer. We utilize our proprietary biologic drug platform to design and generate ETBs, which we believe provides a differentiated mechanism of action that may be beneficial in patients resistant to currently available cancer therapeutics. ETBs use a genetically engineered version of the SLTA. In its wild-type form, SLT is thought to induce its own entry into a cell when proximal to the cell surface membrane, self-route to the cytosol, and enzymatically and irreversibly shut down protein synthesis via ribosome inactivation. SLTA is normally coupled to its cognate Shiga-like Toxin B subunit, or SLTB, to target the CD77 cell surface marker, a non-internalizing glycosphingolipid. In our scaffold, a genetically engineered SLTA subunit with no cognate SLTB component is genetically fused to antibody domains or fragments specific to a cancer target, resulting in a biologic therapeutic that can identify the particular target and specifically kill the cancer cell. The antibody domains may be substituted with other antibody domains having different specificities to allow for the rapid development of new drugs to selected targets in cancer.

ETBs combine the specificity of an antibody with SLTA's potent mechanism of cell destruction. Based on the disease setting, we have created ETBs that have reduced immunogenicity and are capable of delivering additional payloads into a target cell. Immunogenicity is the ability of a foreign substance to provoke an immune response in a host. ETBs have relatively predictable pharmacokinetic, or PK, and absorption, distribution, metabolism and excretion, or ADME, profiles and can be rapidly screened for

desired activity in robust cell-based and animal-model assays. Because SLTA can induce internalization against non- and poorly-internalizing receptors, the universe of targets for ETBs should be substantially larger than that seen with antibody drug conjugates, or ADCs, which are not likely to be effective if the target does not readily internalize the ADC payload.

ETBs have a differentiated mechanism of cell-kill in cancer therapeutics (the inhibition of protein synthesis via ribosome destruction), and we have preclinical and clinical data demonstrating the utility of these molecules in chemotherapy-refractory cancers. ETBs have shown good safety data in multiple animal models as well as in our clinical studies to date. We believe the target specificity of ETBs, their ability to self-internalize, their potent and differentiated mechanism of cell kill and their safety profile provide opportunities for the clinical development of these agents to address multiple cancer types.

Our initial approach to drug development in oncology involves the selection of lead compounds to validated targets in cancer. We have developed ETBs for various targets, including CD20, CD38, HER2, and PD-L1. CD20 is central to B cell malignancies and is clinically validated as a target for the treatment of lymphomas and autoimmune disease. CD38 has been validated as a meaningful clinical target in the treatment of multiple myeloma. PD-L1 is central to immune checkpoint pathways and is a target expressed in a variety of solid tumor cancers. Our lead compound, MT-3724, is an ETB that recognizes CD20, a B cell marker and is currently in phase I study. The dose escalation portion of its first Phase I clinical trial has been completed for MT-3724 and was followed by the initiation of a Phase Ib expansion cohort, which was initiated in the fourth quarter of 2017. In the first quarter of 2019, we expect to start a Phase II monotherapy study with MT-3724, which has the potential to be a pivotal study. We expect to start enrolling patients in a Phase II combination study with MT-3724 and chemotherapy in earlier lines of diffuse large B-cell lymphoma (DLBCL) in the fourth quarter of 2018 and we expect to initiate a second Phase II combination study with MT-3724 and Revlimid® (lenalidomide) in earlier lines of DLBCL in the first quarter of 2019. We anticipate filing IND applications for TAK-169 in 2019, for our HER2 ETB in the first quarter of 2019, and for our PD-L1 ETB in the second half of 2019.

We have built up multiple core competencies around the creation and development of ETBs. We developed the ETB technology in-house and continue to make iterative improvements in the scaffold and identify new uses of the technology. We also developed the proprietary process for manufacturing ETBs under Good Manufacturing Process, or GMP standards and continue to make improvements to its manufacturing processes.

We have conducted multiple GMP manufacturing runs with its lead compound and believes this process is robust and could support commercial production with gross margins that are similar to those seen with antibodies.

We are a clinical-stage company and have not generated revenue from product sales. Our ability to generate revenue sufficient to achieve profitability will depend heavily on the successful development and eventual commercialization of one or more of our ETB candidates. Since inception, we have incurred significant operating losses. For the nine months ended September 30, 2018 and 2017, we incurred net losses of $23.7 million and $17.2 million, respectively. As of September 30, 2018, we had an accumulated deficit of $88.1 million.

In September 2018, we completed a public offering of 9,430,000 shares of common stock at an offering price of $5.50 per share, which included the exercise in full by the underwriters of their option to purchase up to 1,230,000 additional shares of common stock. We received net proceeds of approximately $48.1 million, after deducting underwriting discounts, commissions and estimated offering related transaction costs. We will continue to require substantial additional capital to continue our clinical development and potential commercialization activities. Accordingly, we will need to raise substantial additional capital to continue to fund our operations.

However, we expect to incur significant expenses and operating losses for the foreseeable future as we advance our lead ETB candidates through clinical trials, progress our pipeline ETB candidates from discovery through pre-clinical development, and seek regulatory approval and pursue commercialization of our ETB candidates. In addition, if we obtain regulatory approval for any of our ETB candidates, we expect to incur significant commercialization expenses related to product manufacturing, marketing, sales and distribution. In addition, we may incur expenses in connection with the in-license or acquisition of additional technology to augment or enable development of future ETB candidates. Furthermore, we expect to incur additional costs associated with operating as a public company, including significant legal, accounting, investor relations and other expenses that we did not incur as a private company.

As a result, we will need additional financing to support our continuing operations. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through a combination of public or private equity and debt financings or other sources, which may include collaborations with third parties. Adequate additional financing may not be available to us on acceptable terms, or at all. Our inability to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue our business strategy. We will need to generate significant revenue to achieve profitability, and we may never do so.

We expect that our existing cash and cash equivalents will enable us to fund our operating expenses and capital expenditure requirementsinto the first half of 2021.

Collaboration Agreements

Takeda Pharmaceuticals

Takeda Collaboration and Individual Project Agreements

In October 2016, we entered into a collaboration and option agreement (the "Takeda Collaboration Agreement") with Millennium Pharmaceuticals, Inc., a wholly owned subsidiary of Takeda Pharmaceutical Company Ltd. ("Takeda") to discover and develop CD38-targeting ETBs, which includes MT-4019 for evaluation by Takeda. Under the terms of the agreement, we are responsible for providing to Takeda (i) new ETBs generated using Takeda's proprietary antibodies targeting CD38 and (ii) MT-4019 for *in vitro* and *in vivo* pharmacological and anti-tumor efficacy evaluations. We granted Takeda an exclusive option to negotiate and obtain an exclusive worldwide license to develop and commercialize any ETB that may result from this collaboration, including MT-4019. We are entitled to receive up to $2.0 million in technology access fees and cost reimbursement associated with our performance and completion of our obligations under the agreement. As of September 30, 2018, we have received $2.0 million under the Takeda Collaboration Agreement.

In connection with the Takeda Collaboration Agreement, we entered into an Individual Project Agreement (the "Takeda Individual Project Agreement") with Takeda in June 2018 that was subsequently amended in July 2018. Under the Takeda Individual Project Agreement, we are responsible to perform certain research and development services relating to Chemistry, Manufacturing, and Controls ("CMC") work for three potential lead ETBs targeting CD38. In consideration of these services, we will receive up to $2.2 million in compensation. As of September 30, 2018, we have received approximately $0.7 million under the Takeda Individual Project Agreement.

Takeda Development and License Agreement

On September 18, 2018, we entered into a development collaboration and exclusive license agreement (the "License Agreement") with Millennium Pharmaceuticals, Inc., a wholly-owned subsidiary of Takeda Pharmaceutical Company Limited ("Takeda"), for the development and commercialization of products incorporating or comprised of one or more CD38 SLT-A fusion proteins ("Licensed Products") for the treatment of patients with diseases such as multiple myeloma..

Pursuant to the License Agreement, we will initially co-develop with Takeda one or more of the Licensed Products up to and including Phase Ia clinical trials, with us having an option to continue to co-develop the Licensed Products following Phase Ia clinical trials. We may exercise our co-development option within a specified time period following completion of the Phase Ia clinical trials with no additional fee by providing written notice of exercise to Takeda, provided we have paid all co-development costs due pursuant to the License Agreement as of the date of such exercise. Pursuant to the terms of the License Agreement, Takeda will be responsible for all regulatory activities and commercialization of the Licensed Products. We have granted Takeda specified intellectual property licenses to enable Takeda to perform its obligations and exercise its rights under the License Agreement, including exclusive license grants to enable Takeda to conduct development, manufacturing, and commercialization activities pursuant to the terms of the License Agreement.

Pursuant to the Development Agreement, Takeda made an upfront payment of $30.0 million to us. In addition to the upfront fee, if we exercise our co-development option and fund our share of development costs, we may receive up to an additional $307.5 million in milestone payments upon the achievement of certain development and regulatory milestone events and up to an additional $325 million in milestone payments upon the achievement of certain sales milestone events. If we do not exercise our co-development option, we may receive up to an additional $162.5 million in milestone payments upon the achievement of certain development and regulatory milestone events and up to an additional $175 million in milestone payments upon the achievement of certain sales milestone events. We will also be entitled to receive tiered royalties, subject to certain reductions, as percentages of annual aggregate net sales, if any, of Licensed Products. The royalty percentages would range from low double-digits to low twenties if we exercise our option to co-develop, and from high-single digits to low teens if we do not exercise its option to co-develop.

The parties will share in co-development costs in accordance with the terms of the Development Agreement, and Takeda will be responsible for all costs incurred commercializing the Licensed Products.

Unless earlier terminated, the License Agreement will expire upon the expiration of the last-to-expire co-development royalty term (or royalty term, if applicable) for a Licensed Product. Takeda has the right to terminate the License Agreement at any time upon no less than ninety days' prior written notice tous. We or Takeda may, subject to specified cure periods, terminate the License Agreement in the event of the other party's uncured material breach, and either party may terminate the License Agreement under specified circumstances relating to the other party's insolvency.

Takeda Multi-Target Agreement

In June 2017, we entered into a multi-target collaboration and license agreement with Takeda (the "Takeda Multi-Target Agreement"), pursuant to which we will collaborate with Takeda to identify, generate and evaluate ETBs, against certain targets designated by Takeda. Pursuant to the Takeda Multi-Target Agreement, Takeda will designate certain targets of interest as the focus of the research. Takeda will provide to us targeting moieties against the designated targets and we will create and characterize ETBs against those targets and provide them to Takeda for further evaluation. Each party granted to the other nonexclusive rights in its intellectual property for purposes of the conduct of the research, and we agree to work exclusively with Takeda with respect to the designated targets. We are entitled to receive up to $5.0 million in technology access fees and research and development fees associated with our performance and completion of our obligations under the agreement. In December 2017, Takeda nominated both targets under the Takeda Multi-Target Agreement. As of September 30, 2018, we have received $5.0 million under the Takeda Multi-Target Agreement.

Under the Takeda Multi-Target Agreement, Takeda has an option to acquire an exclusive license under our intellectual property to develop, manufacture, commercialize and otherwise exploit ETBs against the designated targets. Upon exercise of the option, Takeda is obligated to use commercially reasonable efforts to develop and obtain regulatory approval of any licensed ETBs in major market countries, and thereafter to commercialize licensed ETBs in those countries. We are obligated to manufacture ETBs to support research and clinical development through Phase I clinical trials, provided that Takeda can assume manufacturing responsibility at any time.

Under the Multi-Target Agreement, license fees and research and early and late state development milestone payments which are based on various research and clinical milestones, including the initiation of certain clinical studies, the submission for approval of a drug candidate to certain regulatory authorities for marketing approval and the commercial launch of collaboration products could become due. We may receive additional net milestone payments of $25.0 million in aggregate through the exercise of the option to license ETBs under the Takeda Multi-Target Agreement. Additionally, we are entitled to receive up to approximately $547.0 million in additional milestone payments through preclinical and clinical development and commercialization. We are also entitled to tiered royalty payments of a mid-single to low-double digit percentage of net sales of any licensed ETBs, subject to certain reductions. Finally, we are entitled to receive up to $10.0 million in certain contingency fees.

The Takeda Multi-Target Agreement will expire on the expiration of the option period for the designated targets if Takeda does not exercise its options, or, following exercise of the option, on the later of the expiration of patent rights claiming the licensed ETB or ten years from first commercial sale of a licensed ETB. The Takeda Multi-Target Agreement may be sooner terminated by Takeda for convenience; or by us upon a change of control; or by either party for an uncured material breach of the agreement.

For more information about our collaboration agreements, please see Note 4, "Research and Development Agreements" to our unaudited condensed financial statements for the three months ended September 30, 2018, included in this Quarterly Report on Form 10-Q.

CPRIT Grant Contract

On September 18, 2018, we entered into a Cancer Research Grant Contract (the "CPRIT Agreement") with CPRIT, in connection with a grant of approximately $15.2 million awarded by CPRIT to us in November 2016 to fund research of a cancer therapy involving an ETB that is targeting CD38 (MT-4019) (the "Award"). Pursuant to the CPRIT Agreement, we may also use such funds to develop a replacement CD38 targeting ETB, with or without a partner. The Award is contingent upon funds being available during the term of the Agreement and subject to CPRIT's ability to perform its obligations under the Agreement as well as our progress towards achievement of specified milestones, among other contractual requirements.

Subject to the terms of the Agreement, full ownership of any CPRIT funded technology and CPRIT funded intellectual property rights developed pursuant to theCPRIT Agreement will be retained by us, our Collaborators (as defined in theCPRIT Agreement) and, to the extent applicable, any participating third party (the "Project Results"). With respect to any Project Results, we agreed to grant to CPRIT a nonexclusive, irrevocable, royalty-free, perpetual, worldwide license, solely for academic, research and other non-commercial purposes, under the Project Results and to exploit any necessary additional intellectual property rights, subject to certain exclusions.

We will pay to CPRIT, during the term of the CPRIT Agreement, certain payments equal to a percentage of revenue ranging from the low- to mid-single digits. These payments will continue up to and until CPRIT receives an aggregate amount of 400% of the sum of all monies paid to us by CPRIT under the CPRIT Agreement. If we are required to obtain a license from a third party to sell any such product, the revenue sharing percentages may be reduced. In addition, once we pay CPRIT 400% of the monies we have received under the CPRIT Agreement, we will continue to pay CPRIT a revenue-sharing percentage of 0.5%.

The CPRIT Agreement will terminate, with certain obligations extending beyond termination, on the earlier of (a) May 31, 2019 or (b) the occurrence of any of the following events: (i) by mutual written consent of the parties, (ii) by CPRIT for an Event of Default (as defined in the CPRIT Agreement) by us, (iii) by CPRIT if allocated funds should become legally unavailable during the term of the CPRIT Agreement and CPRIT is unable to obtain additional funds or (iv) by us for convenience. CPRIT may approve a no cost extension for the CPRIT Agreement for a period not to exceed six months after the termination date if additional time is required to ensure adequate completion of the approved project, subject to the terms and conditions of the CPRIT Agreement.

Financial Operations Overview

Revenue

Our revenue has consisted principally of research and development revenue and grant revenue.

Grant revenue relates to our Cancer Prevention Research Institute of Texas, or CPRIT grants for MT-3724 and MT-4019. CPRIT grant funds for MT-3724 are provided to us in advance as conditional cost reimbursement where revenue is recognized as allowable costs are paid. Amounts collected in excess of revenue recognized are recorded as deferred revenue. CPRIT grant funds for MT-4019 are provided to us in arrears as cost reimbursement where revenue is recognized as allowable costs are paid. Revenue recognized in excess of amounts collected are recorded as unbilled revenue. For the three months ended September 30, 2018 and 2017, we recognized $4.7 million and zero, respectively, in CPRIT grant revenues related to the pre-clinical and clinical development of MT-3724 and MT-4019. For the nine months ended September 30, 2018 and 2017, we recognized $5.4 million and $167,000, respectively, in CPRIT grant revenues related to the pre-clinical and clinical development of MT-3724 and MT-4019.

Research and Development revenue primarily relates to our collaboration with Takeda. We have an ongoing research collaboration with Takeda Pharmaceuticals related to the evaluation of our ETB technology that was initiated in the fourth quarter 2016. The Takeda Collaboration Agreement and Takeda Multi-Target Agreement provide for upfront technology access fees, milestone payments and reimbursement payments. Under ASC 606, *Revenue from Contracts with Customers*, we recognize revenue when a customer obtains control of promised goods or services, in an amount that reflects the consideration which we expect to receive in exchange for those goods or services. To determine revenue recognition for arrangements that are within the scope of ASC 606, we perform the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) we satisfy each performance obligation. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. Amounts received prior to satisfying the revenue recognition criteria are recognized as deferred revenue in our balance sheet. For the three months ended September 30, 2018 and 2017, we recognized $2.0 million and $0.6 million, respectively, in research and development revenue related to research collaboration agreements. For the nine months ended September 30, 2018 and 2017, we recognized $3.2 million and $2.4 million, respectively, in research and development revenue related to research collaboration agreements.

We have no products approved for sale. Other than the sources of revenue described above, we do not expect to receive any revenue from any ETB candidates that we develop, including MT-3724, MT-4019 and other pre-clinical ETB candidates, until we obtain regulatory approval and commercialize such products, or until we potentially enter into collaborative agreements with third parties for the development and commercialization of such candidates.

Research and Development Expenses

Research and development expenses consist principally of:

- salaries for research and development staff and related expenses, including stock-based compensation expenses;
- costs for current good manufacturing practices, or cGMP, manufacturing of drug substances and drug products by contract manufacturers;

- fees and other costs paid to clinical trials sites and clinical research organizations, or CROs, in connection with the performance of clinical trials and preclinical testing;
- costs for consultants and contract research;
- costs of laboratory supplies and small equipment, including maintenance; and
- depreciation of long-lived assets.

For the three months ended September 30, 2018 and 2017, we incurred research and development costs of $8.3 million and $2.5 million, respectively. For the nine months ended September 30, 2018 and 2017, we incurred research and development costs of $22.6 million and $4.8 million, respectively. Our research and development expenses may vary substantially from period to period based on the timing of our research and development activities, including the initiation and enrollment of patients in clinical trials and manufacture of drug materials for clinical trials.

We expect research and development expenses to increase as we advance the clinical development of MT-3724 and further advance the research and development of our pre-clinical ETB candidates, including MT-4019, and other earlier stage products. The successful development of our ETB candidates is highly uncertain. At this time, we cannot reasonably estimate the nature, timing and estimated costs of the efforts that will be necessary to complete the development of, or the period, if any, in which material net cash inflows may commence from, any of our ETB candidates. This is due to numerous risks and uncertainties associated with developing drugs, including the uncertainty of:

- the scope, rate of progress and expense of our research and development activities;
- clinical trials and early-stage results;
- the terms and timing of regulatory approvals; and
- the ability to market, commercialize and achieve market acceptance for MT-3724, MT-4019 or any other ETB candidate that we may develop in the future.

Any of these variables with respect to the development of MT-3724, MT-4019 or any other ETB candidate that we may develop could result in a significant change in the costs and timing associated with the development of MT-3724, MT-4019 or such other ETB candidates. For example, if the U.S. Food and Drug Administration, or the FDA, the European Medical Association or the EMA, or other regulatory authority were to require us to conduct pre-clinical and clinical studies beyond those which we currently anticipate will be required for the completion of clinical development or if we experience significant delays in enrollment in any clinical trials, we could be required to expend significant additional financial resources and time on the completion of our clinical development programs.

General and Administrative Expenses

Our general and administrative expenses consist principally of:

- salaries for employees other than research and development staff, including stock-based compensation expenses;
- professional fees for auditors and other consulting expenses related to general and administrative activities;
- professional fees for legal services related to the protection and maintenance of our intellectual property and regulatory compliance;
- cost of facilities, communication and office expenses;
- information technology services; and
- depreciation of long-lived assets.

We expect that our general and administrative costs will increase in the future as our business expands and we increase our headcount to support the expected growth in our operating activities. Additionally, we expect these expenses will also increase in the future as we incur additional costs associated with operating as a public company. These increases will likely include additional legal fees, accounting and audit fees, management board and supervisory board liability insurance premiums and costs related to investor relations. In addition, we expect to grant stock-based compensation awards to key management personnel and other employees.

Other Income (Expense)

Other income (expense) mainly includes interest income earned on our cash balances held, and interest expense on our outstanding borrowings.

Change in fair value of warrant liability

Change in fair value of warrant liability relates to the change in fair value of our warrants categorized as liabilities.

Results of Operations

The table below summarizes our results of operations for the three and nine months ended September 30, 2018 and 2017 (in thousands).

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Research and development revenue	$ 2,031	$ 648	$ 3,206	$ 2,408
Grant revenue	4,721	—	5,395	167
Total revenue	6,752	648	8,601	2,575
Research and development expenses	8,290	2,522	22,640	4,829
General and administrative expenses	3,538	3,996	10,165	8,233
Total operating expenses	11,828	6,518	32,805	13,062
Loss from operations	5,076	5,870	24,204	10,487
Interest and other income, net	107	1	307	2
Interest expense	(279)	(107)	(672)	(752)
Change in fair value of warrant liabilities	4	(272)	916	(269)
Loss on conversion of notes	—	(4,719)	—	(4,719)
Net loss	$ 5,244	$ 10,967	$ 23,653	$ 16,225

Research and Development Revenue

Research and development revenue increased $1.4 million during the three months ended September 30, 2018 compared to the three months ended September 30, 2017. Research and development revenues for the three months ended September 30, 2018 and 2017 were mainly comprised of research and development revenues from our collaboration with Takeda of $1.9 million and $648,000, respectively. The increase in research and development revenues from our collaboration with Takeda was primarily due to revenue recognized under the Takeda Individual Project Agreement.

Research and development revenue increased $0.8 million during the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017. Research and development revenues for the nine months ended September 30, 2018 and 2017were mainly comprised of research and development revenues from our collaboration with Takeda of $3.0 million and $1.9 million, respectively. The increase in research and development revenues from our collaboration with Takeda was primarily due to revenue recognized under the Takeda Individual Project Agreement.

For more information about our collaboration agreements, please see Note 4, “Research and Development Agreements” to our unaudited condensed financial statements for the three months ended September 30, 2018, included in this Quarterly Report on Form 10-Q.

Grant Revenue

Grant revenue increased $4.7 million during the three months ended September 30, 2018 when compared to the three months ended September 30, 2017. The increase was primarily attributable to the CPRIT grant related to CD-38 targeting ETB MT-4019.

Grant revenue increased $5.2 million during the nine months ended September 30, 2018 when compared to nine months ended September 30, 2017. The increase was primarily attributable to the CPRIT grant related to CD-38 targeting ETB MT-4019; and to CPRIT phase II program expenses increasing during the nine months ended September 30, 2018, and minimal activity during the nine months ended September 30, 2017 due to Phase I having been completed.

Research and Development Expenses

The table below summarizes our research and development expenses for the three and nine months ended September 30, 2018 and 2017 (in thousands).

Research and development expenses by cost type:	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Employee compensation	$ 1,957	$ 983	$ 5,523	$ 1,780
Program costs	5,076	1,226	13,518	2,449
Laboratory costs	633	222	1,759	434
Other research and development costs	624	91	1,840	166
Total research and development expenses	$ 8,290	$ 2,522	$ 22,640	$ 4,829

Research and development expenses increased $5.8 million during the three months ended September 30, 2018 as compared to the three months ended September 30, 2017. The increase was primarily due to costs related to increased outsourced program costs, along with increased payroll related costs due to increased headcount.

Our research and development expenses during the three months ended September 30, 2018 relate primarily to the discovery and development of ETBs. From a program perspective, the increase in outsourced program costs during the three months ended September 30, 2018 compared to the same period in 2017 is primarily due to increase in costs related to HER2 of $2.1 million, MT-3724 of $1.0 million, and CD38 of $0.3 million.

Research and development costs increased $17.8 million during the nine months ended September 30, 2018 as compared to the nine months ended September 30, 2017. The increase was primarily due to costs related to increased outsourced program costs, along with increased payroll related costs due to increased headcount.

Our research and development expenses during the nine months ended September 30, 2018 relate primarily to the discovery and development of ETBs. From a program perspective, the increase in outsourced program costs during the nine months ended September 30, 2018 compared to the same period in 2017 is primarily due to increase in costs related to HER2 of $3.5 million, CD-38 of $3.3 million, and MT-3724 of $2.2 million.

The risks and uncertainties associated with our research and development projects are discussed more fully in the “Risk Factors” section in Part II, Item 1A of this Quarterly Report on Form 10-Q. As a result of the risks and uncertainties discussed in the “Risk Factors” section and above, we are unable to determine with any degree of certainty the duration and completion costs of our research and development projects, anticipated completion dates or when and to what extent we will receive cash inflows from the commercialization and sale of a product candidate. To date, we have not commercialized any of our product candidates and in fact may never do so.

General and Administrative Expenses

General and administrative expenses decreased $458,000 during the three months ended September 30, 2018 compared to the three months ended September 30, 2017, primarily due to merger related costs incurred in 2017.

General and administrative expenses increased $1.9 million during the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017, primarily due to increased costs associated with being a publicly traded company, along with increased payroll related costs due to increased headcount.

Interest Expense

Interest expense increased $172,000 during the three months ended September 30, 2018, as compared to the three months ended September 30, 2017, primarily due to interest on the Perceptive Facility. Interest expense decreased $80,000 during the nine months ended September 30, 2018, as compared to the nine months ended September 30, 2017, primarily due interest expense associated with the bridge note payable to Threshold in 2017.

Change in fair value of warrant liability

The change in fair value of warrant liabilities relates to the revised fair value of the 2017 warrants categorized as liabilities.

Liquidity and Capital Resources

Sources of Funds

We have devoted substantially all of our resources to developing our ETB candidates and platform technology, building our intellectual property portfolio, developing our supply chain, conducting business planning, raising capital and providing for general and administrative support for these operations. We plan to increase our research and development expenses for the foreseeable future as we continue to advance MT-3724, MT-4019 and our earlier-stage pre-clinical programs. At this time, due to the inherently unpredictable nature of preclinical and clinical development and given the early stage of our programs and product candidates, we cannot reasonably estimate the costs we will incur and the timelines that will be required to complete development, obtain marketing approval and commercialize our products, if and when approved. For the same reasons, we are also unable to predict when, if ever, we will generate revenue from product sales or whether, or when, if ever, we may achieve profitability. Clinical and preclinical development timelines, the probability of success and development costs can differ materially from expectations. In addition, we cannot forecast which products, if and when approved, may be subject to future collaborations, when such arrangements will be secured, if at all, and to what degree such arrangements would affect our development plans and capital requirements. We have incurred an accumulated deficit of $88.1 million through September 30, 2018. We expect to incur substantial additional losses in the future as we expand our research and development activities. Based on our current research and development plans, we expect that our existing cash and cash equivalents will enable us to fund our operating expenses and capital expenditure requirements into the first half of 2021.

Our financial statements as of September 30, 2018 have been prepared under the assumption that we will continue as a going concern for the next 12 months. To date, we have financed our operations through private placements of equity securities, a reverse merger, and upfront and milestone payments received from our collaborators under our research evaluation agreements, as well as funding from governmental bodies and bank and bridge loans. Since 2009, we raised gross proceeds of $78.2 million from private placements of equity securities, including $40.0 million from the Private Placement in August 2017and $20.0 million from the Takeda Financing in August 2017; as well as $52 million in gross proceeds from a public offering in September 2018. Since 2009, we have also received aggregate gross proceeds of $8.5 million from our collaborators, received $10.0 million in proceeds from related-party convertible promissory notes, received $6.0 million in proceeds from bank loan from Silicon Valley Bank, or SVB, $5.0 million in proceeds from the Perceptive Facility; and assumed $15.2 million of cash balances of Threshold upon the closing of the Merger.

On February 27, 2018, we entered into the Perceptive Credit Facility, which allows for aggregate borrowings of up to $10.0 million, subject to our achievement of certain milestones. We drew down an aggregate of $5.0 million under the Perceptive Credit Facility through September 30, 2018. Payments for the first 24 months are interest only and are paid quarterly, commenced April 2018. After the second anniversary of the closing date of the Perceptive Credit Facility, principal payments of $200,000 are due each calendar quarter, with a final payment of $3.4 million due on February 27, 2022. The loan matures on February 27, 2022 and is secured by substantially all our assets.

On September 18, 2018, the Company entered into a Cancer Research Grant Contract (the “CPRIT Agreement”) with the CPRIT, in connection with a grant of approximately $15.2 million awarded by CPRIT to the Company in November 2016 to fund research of a cancer therapy involving a CD38 targeting ETB (MT-4019).

In April 2014, we entered into a loan and security agreement with SVB that was subsequently amended in April 2015 (the "Growth Capital Loan"), and we borrowed an aggregate of $6.0 million under the Growth Capital Loan through February 27, 2018. We used the proceeds from the Perceptive Credit Facility to pay off the Growth Capital Loan on February 27, 2018. We paid $3.2 million in principal, $375,000 in a final fee, and $42,000 in interest during the three months ended March 31, 2018.

As of September 30, 2018, we had cash and cash equivalents of $78.7 million. As of December 31, 2017, we had cash and cash equivalents of $58.9 million.

Cash Flows

(in thousands)	Nine Months Ended September 30,	
	2018	2017
Net cash used in operating activities	$ (23,859)	$ (6,354)
Net cash used in investing activities	(5,421)	10,447
Net cash provided by financing activities	49,114	62,372
Net increase (decrease) in cash and cash equivalents	$ 19,834	$ 66,465

The increase in net cash used in operating activities to $23.9 million for the nine months ended September 30, 2018 from $6.4 million for the nine months ended September 30, 2017 was primarily due to an increase in operating cash disbursements as result of an increase in operating activities.

The increase in net cash used in investing activities to $5.4 million for the nine months ended September 30, 2018 from $10.4 million in net cash provided from investing activities for the nine months ended September 30, 2017 was primarily due to increased leasehold improvements and increased purchases of equipment related to our GMP manufacturing facility build-out in our Austin, Texas facility.

The decrease in net cash provided by financing activities to $49.1 million for the nine months ended September 30, 2018 from $62.4 million for the nine months ended September 30, 2017 was primarily due to approximately $48.1 million net proceeds from issuance of common stock in September 2018 compared to $57.8 million in proceeds from issuance of common stock and warrants in August 2017.

Operating and Capital Expenditure Requirements

We have not achieved profitability since our inception and had an accumulated deficit of $88.1 million as of September 30, 2018. We expect to continue to incur significant operating losses for the foreseeable future as we continue our research and development efforts and seek to obtain regulatory approval and commercialization of our ETB candidates.

We expect our expenses to increase substantially in connection with our ongoing development activities related to MT-3724, MT-4019, our pre-clinical programs, and expanding our operating capabilities. In addition, we expect to incur additional costs associated with operating as a public company. We anticipate that our expenses will increase substantially if and as we:

- complete the ongoing Phase I expansion clinical trial of MT-3724, our lead ETB candidate;
- support the ongoing Phase Ib and initiate Phase II clinical trials of MT-3724;
- conduct the Phase I clinical trial of MT-4019, our second ETB candidate;
- continue the research and development of our other ETB candidates, including completing pre-clinical studies and commencing clinical trials;
- seek to enhance our technology platform using our antigen-seeding technology approach to immuno-oncology;
- seek regulatory approvals for any ETB candidates that successfully complete clinical trials;
- potentially establish a sales, marketing and distribution infrastructure and scale up manufacturing capabilities to commercialize any products for which we may obtain regulatory approval;

- add clinical, scientific, operational, financial and management information systems and personnel, including personnel to support our product development and potential future commercialization efforts and to support our increased operations; and
- experience any delays or encounter any issues resulting from any of the above, including but not limited to failed studies, complex results, safety issues or other regulatory challenges.

We expect that our existing cash and cash equivalents will enable us to fund our operating expenses and capital expenditure requirements into the first half of 2021. We have based this estimate on assumptions that may prove to be wrong, and we may use our available capital resources sooner than we currently expect.

Because of the numerous risks and uncertainties associated with the development of MT-3724, MT-4019 and our other pre-clinical programs, and because the extent to which we may enter into collaborations with third parties for development of these ETB candidates is unknown, we are unable to estimate the amounts of increased capital outlays and operating expenses associated with completing the research and development of our ETB candidates. Our future capital requirements for MT-3724, MT-4019 or our other pre-clinical programs will depend on many factors, including:

- the progress, timing and completion of pre-clinical testing and clinical trials for our current or any future ETB candidates;
- the number of potential new ETB candidates we identify and decide to develop;
- the costs involved in growing our organization to the size needed to allow for the research, development and potential commercialization of our current or any future ETB candidates;
- the costs involved in filing patent applications and maintaining and enforcing patents or defending against claims or infringements raised by third parties;
- the time and costs involved in obtaining regulatory approval for our ETB candidates and any delays we may encounter as a result of evolving regulatory requirements or adverse results with respect to any of these ETB candidates;
- any licensing or milestone fees we might have to pay during future development of our current or any future ETB candidates;
- selling and marketing activities undertaken in connection with the anticipated commercialization of our current or any future ETB candidates and costs involved in the creation of an effective sales and marketing organization; and
- the amount of revenues, if any, we may derive either directly or in the form of royalty payments from future sales of our ETB candidates, if approved.

Identifying potential ETB candidates and conducting pre-clinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, our ETB candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for many years, if ever. Accordingly, we will need to obtain substantial additional funds to achieve our business objectives.

Adequate additional funds may not be available to us on acceptable terms, or at all. To the extent that we raise additional capital through the sale of equity or convertible debt securities, stockholders' ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect their rights as stockholders. Additional debt financing and equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends and may require the issuance of warrants, which could potentially dilute stockholders' ownership interest.

If we raise additional funds through collaborations, governmental grants, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or ETB candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development programs or any future commercialization efforts or grant rights to develop and market ETB candidates that we would otherwise prefer to develop and market ourselves.

Critical Accounting Policies and Use of Estimates

Our discussion and analysis of our financial condition and results of operations are based on our unaudited condensed consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America for interim financial information. The preparation of these unaudited condensed consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses based on historical experience and on various assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions. For further information on our critical accounting policies, see the discussion of critical accounting policies in our Annual Report on Form 10-K for the year ended December 31, 2017, which we filed with the SEC on March 30, 2018.

Recent Accounting Pronouncements Not Yet Adopted

For a discussion of recently issued accounting pronouncements and interpretations not yet adopted by us, please see Note 1, "Organization and Summary of Significant Accounting Policies" to our unaudited condensed financial statements for the three and nine months ended September 30, 2018, included in this Quarterly Report on Form 10-Q.

Contractual Commitments and Obligations

As of September 30, 2018, we had no material commitments other than the liabilities reflected and commitments disclosed in our condensed consolidated financial statements.

Off-Balance Sheet Arrangements

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

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company is exposed to a variety of financial risks. The Company's overall risk management program seeks to minimize potential adverse effects of these financial risks on its financial performance.

Credit Risk

The Company considers all of its material counterparties to be creditworthy. The Company considers the credit risk for each of its counterparties to be low and does not have a significant concentration of credit risk at any of its counterparties.

Liquidity Risk

The Company manages its liquidity risk by maintaining adequate cash reserves at banking facilities, and by continuously monitoring its cash forecasts, its actual cash flows and by matching the maturity profiles of financial assets and liabilities.

Market Risk

The Company is not subject to any significant foreign exchange risk and interest rate risk.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of disclosure controls and procedures.

Our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2018. 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 its management, including its principal executive and principal financial 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 September 30, 2018, our principal executive officer and principal financial officer concluded that, as of such date, our disclosure controls and procedures were not effective at the reasonable assurance level.

Material Weakness and Remediation of Material Weakness

Our management responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. As previously disclosed in our registration statement on Form S-4/A (File No. 333-217993) relating to the Merger, in connection with the audits of Private Molecular's consolidated financial statements for the years ended December 31, 2015 and 2016 and preparation of interim financial statements for the three months ended March 31, 2017, Private Molecular and its independent registered public accounting firm identified a material weakness in Private Molecular's internal control over financial reporting. This material weakness continues to be in place as of September 30, 2018. A material weakness is defined as a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented or detected and corrected on a timely basis.

Prior to the completion of the Merger, Private Molecular was a private company and had limited accounting and financial reporting personnel and other resources with which to address its internal controls and procedures. Private Molecular's lack of adequate accounting personnel resulted in the identification of a material weakness in its internal control over financial reporting, which has continued through September 30, 2018. Specifically, Private Molecular did not timely and appropriately account for and disclose the impact of complex, non-routine transactions in accordance with U.S. GAAP.

We have begun our remediation plan and have hired and intend to hire additional accounting and finance personnel. For example, in November 2017, we hired a new Chief Financial Officer and a Senior Vice President, Finance and Corporate Controller, each with extensive accounting and public company experience. Additionally, we are in the process of implementation of more robust review, supervision and monitoring of the non-routine transactions and the financial reporting process intended to remediate the identified material weakness.

Changes in internal controls over financial reporting.

Other than as described above, there were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during three months ended September 30, 2018 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

From time to time, we are subject to various legal proceedings, claims and administrative proceedings that arise in the ordinary course of our business activities. Although the results of the litigation and claims cannot be predicated with certainty, as of the date of this report, we do not believe we are party to any claim, proceeding or litigation the outcome of which, if determined adversely to us, would individually or in the aggregate be reasonably expected to have a material adverse effect on our business. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

ITEM 1A. RISK FACTORS

We have identified the following risks and uncertainties that may have a material adverse effect on our business, financial condition or results of operations. The risks described below are not the only ones we face. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations. Our business could be harmed by any of these risks. If any of the possible adverse events described below actually occur, we may be unable to conduct our business as currently planned and our financial condition and operating results could be harmed. In assessing these risks, you should refer to the other information contained in this Quarterly Report on Form 10-Q, including our condensed consolidated financial statements and related notes.

Risks Related to Our Financial Condition and Capital Requirements

We have incurred losses since inception, have a limited operating history on which to assess our business, and anticipate that we will continue to incur significant losses for the foreseeable future.

We are a clinical development-stage biopharmaceutical company with a limited operating history. We have incurred net losses in each year since 2009, including net losses attributable to common shareholders of $23.7 million for nine months ended September 30, 2018. As of September 30, 2018, we had an accumulated deficit of $88.1 million.

As of September 30, 2018, we had cash and cash equivalents of $78.7 million. In August 2017, we raised approximately $60.0 million though private placements of our common stock and warrants to purchase our common stock. In September 2018, we completed a public offering of 9,430,000 shares of common stock at an offering price of $5.50 per share, which included the exercise in full by the underwriters of their option to purchase up to 1,230,000 additional shares of common stock. We received net proceeds of approximately $48.1 million, after deducting underwriting discounts, commissions and estimated offering related transaction costs. We will continue to require substantial additional capital to continue our clinical development and potential commercialization activities. Accordingly, we will need to raise substantial additional capital to continue to fund our operations. The amount and timing of our future funding requirements will depend on many factors, including the pace and results of our clinical development efforts. Failure to raise capital as and when needed, on favorable terms or at all, would have a negative impact on our financial condition and our ability to develop our product candidates.

We have devoted substantially all of our financial resources to identify, acquire, and develop our product candidates, including conducting clinical trials and providing general and administrative support for our operations. To date, we have financed our operations primarily through the sale of equity securities and convertible promissory notes. The amount of our future net losses will depend, in part, on the rate of our future expenditures and our ability to obtain funding through equity or debt financings, strategic collaborations or grants. Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of risk. We expect losses to increase as we complete Phase I development and advance into Phase II development of our lead product candidates. We have not yet commenced pivotal clinical trials for any product candidate and it may be several years, if ever, before we complete pivotal clinical trials and have a product candidate approved for commercialization. We expect to invest significant funds into the research and development of our current product candidates to determine the potential to advance these product candidates to regulatory approval.

If we obtain regulatory approval to market one or more products, our future revenue will depend upon the size of any markets in which our product candidates may receive approval, and our ability to achieve sufficient market acceptance, pricing, reimbursement from third-party payors and adequate market share for our product candidates in those markets. Even if we obtain adequate market share for one or more products, because the potential markets in which our product candidates may ultimately receive regulatory approval could be very small, we may never become profitable despite obtaining such market share and acceptance of our products.

We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future and our expenses will increase substantially if and as we:

- continue the clinical development of our product candidates;
- continue efforts to discover new product candidates;
- undertake the manufacturing of our product candidates or increases volumes manufactured by third parties;
- advance our programs into larger, more expensive clinical trials;
- initiate additional preclinical, clinical, or other trials or studies for our product candidates;
- seek regulatory and marketing approvals and reimbursement for our product candidates;
- establish a sales, marketing, and distribution infrastructure to commercialize any products for which we may obtain marketing approval and market for ourselves;
- seek to identify, assess, acquire, and/or develop other product candidates;
- make milestone, royalty or other payments under third-party license agreements;
- seek to maintain, protect, and expand our intellectual property portfolio;
- seek to attract and retain skilled personnel; and
- experience any delays or encounter issues with the development and potential for regulatory approval of our clinical candidates such as safety issues, clinical trial accrual delays, longer follow-up for planned studies, additional major studies or supportive studies necessary to support marketing approval.

Further, the net losses we incur may fluctuate significantly from quarter to quarter and year to year, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance.

Our ability to use our net operating losses to offset future taxable income, if any, may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code, or the Code, a corporation that undergoes an "ownership change" (generally defined as a greater than 50-percentage-point cumulative change (by value) in the equity ownership of certain stockholders over a rolling three-year period) is subject to limitations on its ability to utilize its pre-change net operating losses, or NOLs, to offset future taxable income. If we undergo additional ownership changes (some of which changes may be outside our control), our ability to utilize our NOLs could be further limited by Section 382 of the Code. The Merger resulted in an ownership change under Section 382 of the Code for us, and our pre-Merger NOL carryforwards and certain other tax attributes will be subject to limitation or elimination. The NOL carryforwards and certain other tax attributes of ours may also be subject to limitations as a result of ownership changes. Our NOLs may also be impaired under state law. Accordingly, we may not be able to utilize a material portion of our NOLs. Furthermore, our ability to utilize our NOLs is conditioned upon our attaining profitability and generating U.S. federal taxable income. We have incurred net losses since our inception, and we anticipate that we will continue to incur significant losses for the foreseeable future; thus, we do not know whether or when we will generate the U.S. federal taxable income necessary to utilize our NOLs.

We have a material weakness in our internal control over financial reporting. If one or more material weaknesses persist and are not remediated or if we fail to establish and maintain effective internal control over financial reporting, our ability to accurately report our financial results could be adversely affected.

Prior to the Merger, Private Molecular had limited accounting and financial reporting personnel and other resources with which to address its internal control over financial reporting. In connection with the audits of our consolidated financial statements for the years ended December 31, 2015 and 2016 and preparation of interim financial statements for the first quarter of 2017, we and our independent registered public accounting firm identified a material weakness in our internal control over financial reporting. A material weakness is defined as a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented or detected and corrected on a timely basis.

Prior to the completion of the Merger, Private Molecular was a private company and had limited accounting and financial reporting personnel and other resources with which to address its internal controls and procedures. Private Molecular's lack of adequate accounting personnel resulted in the identification of a material weakness in its internal control over financial reporting, and such material weakness has continued through September 30, 2018. Specifically, Private Molecular did not timely and appropriately account for and disclose the impact of complex, non-routine transactions in accordance with U.S. GAAP. We have begun our remediation plan and have hired and intend to hire additional accounting and finance personnel. Additionally, we are in the process of

implementation of more robust review, supervision and monitoring of the non-routine transactions and the financial reporting process intended to remediate the identified material weakness. There can be no assurance that these efforts will remediate the material weakness or avoid future weaknesses or deficiencies. Any failure to remediate the material weakness and any future weaknesses or deficiencies or any failure to implement required new or improved controls or difficulties encountered in their implementation could cause us to fail to meet our reporting obligations or result in material misstatements in our financial statements. Since the closing of the Merger, our management has been continuously assessing the effectiveness of our disclosure controls and procedures and internal control over financial reporting and will be required to provide an annual report on internal control over financial reporting as of December 31, 2018. If we are unable to remediate our material weakness, our management may not be able to conclude that its disclosure controls and procedures or internal control over financial reporting are effective, which could result in investors losing confidence in our reported financial information and may lead to a decline in the stock price. Failure to comply with Section 404 of the Sarbanes-Oxley Act could potentially subject us to sanctions or investigations by the SEC, the Financial Industry Regulatory Authority or other regulatory authorities, as well as increasing the risk of liability arising from litigation based on securities law.

Failure to maintain effective internal controls in accordance with Section 404 of the Sarbanes-Oxley Act of 2002 could have a material adverse effect on our stock price.

Section 404 of the Sarbanes-Oxley Act and the related rules and regulations of the SEC require annual management assessments of the effectiveness of our internal control over financial reporting. If we fail to maintain the adequacy of our internal control over financial reporting, as such standards are modified, supplemented or amended from time to time, we may not be able to ensure that we can conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act and the related rules and regulations of the SEC. If we cannot favorably assess, or if our independent registered public accounting firm is unable to provide an unqualified attestation report on, the effectiveness of our internal control over financial reporting, investor confidence in the reliability of our financial reports may be adversely affected, which could have a material adverse effect on our stock price.

We have never generated any revenue from product sales and may never become profitable.

We have no products approved for commercialization and have never generated any revenue. Our ability to generate revenue and achieve profitability depends on our ability, alone or with strategic collaborators, to successfully complete the development of, and obtain the regulatory and marketing approvals necessary to commercialize one or more of our product candidates. We do not anticipate generating revenue from product sales for the foreseeable future. Our ability to generate future revenue from product sales depends heavily on our success in many areas, including but not limited to:

- completing research and development of one or more of our product candidates;
- obtaining regulatory and marketing approvals for one or more of our product candidates;
- manufacturing one or more product candidates and establishing and maintaining supply and manufacturing relationships with third parties that are commercially feasible;
- marketing, launching and commercializing one or more product candidates for which we obtain regulatory and marketing approval, either directly or with a collaborator or distributor;
- gaining market acceptance of one or more of our product candidates as treatment options;
- meeting our supply needs in sufficient quantities to meet market demand for our product candidates, if approved;
- addressing any competing products;
- protecting, maintaining and enforcing our intellectual property rights, including patents, trade secrets and know-how;
- negotiating favorable terms in any collaboration, licensing or other arrangements into which we may enter;
- obtaining reimbursement or pricing for one or more of our product candidates that supports profitability; and
- attracting, hiring and retaining qualified personnel.

Even if one or more of the product candidates that we develop is approved for commercial sale, we anticipate incurring significant costs associated with launching and commercializing any approved product candidate. We also will have to develop or acquire manufacturing capabilities or continue to contract with contract manufacturers in order to continue development and potential commercialization of our product candidates. For instance, if our costs of manufacturing our drug products are not commercially feasible, then we will need to develop or procure our drug products in a commercially feasible manner to successfully commercialize any future approved product, if any. Additionally, if we are not able to generate revenue from the sale of any approved products, we may never become profitable.

Raising additional capital may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates. Future debt obligations may expose us to risks that could adversely affect our business, operating results and financial condition and may result in further dilution to our stockholders.

To the extent that we raise additional capital through the sale of equity, convertible debt or other securities convertible into equity, the ownership interest of our stockholders will be diluted, and the terms of these new securities may include liquidation or other preferences that adversely affect rights of our stockholders. Debt financing, if available at all, would likely involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, making additional product acquisitions or declaring dividends. For instance, our term loan facility with Perceptive Credit Holdings II, LP limits additional indebtedness, liens, guaranties, mergers and consolidations, substantial asset sales, investments and loans, sale and leasebacks, transactions with affiliates and fundamental changes. If we raise additional funds through strategic collaborations or licensing arrangements with third parties, we may have to relinquish valuable rights to our product candidates or future revenue streams or grant licenses on terms that are not favorable to us. We cannot be assured that we will be able to obtain additional funding if and when necessary to fund our entire portfolio of product candidates to meet our projected plans. If we are unable to obtain funding on a timely basis, we may be required to delay or discontinue one or more of our development programs or the commercialization of any product candidates or be unable to expand our operations or otherwise capitalize on potential business opportunities, which could materially harm our business, financial condition, and results of operations.

We also have historically received funds from state and federal government grants for research and development. The grants have been, and any future government grants and contracts we may receive may be, subject to the risks and contingencies set forth below under the section titled "*—Risks Related to the Development of Our Product Candidates—Reliance on government funding for our programs may add uncertainty to our research and commercialization efforts with respect to those programs that are tied to such funding and may impose requirements that limit our ability to take certain actions, increase the costs of commercialization and production of product candidates developed under those programs and subject us to potential financial penalties, which could materially and adversely affect our business, financial condition and results of operations."* Although we might apply for government contracts and grants in the future, we cannot assure you that we will be successful in obtaining additional grants for any product candidates or programs.

Changes in interpretation or application of U.S. GAAP may adversely affect our operating results.

We prepare our financial statements to conform to U.S. GAAP. These principles are subject to interpretation by the Financial Accounting Standards Board, or FASB, American Institute of Certified Public Accountants, the SEC and various other regulatory or accounting bodies. A change in interpretations of, or our application of, these principles can have a significant effect on our reported results and may even affect our reporting of transactions completed before a change is announced. In addition, when we are required to adopt new accounting standards, our methods of accounting for certain items may change, which could cause our results of operations to fluctuate from period to period and make it more difficult to compare our financial results to prior periods.

Risks Related to the Development of Our Product Candidates

Clinical trials are costly, time consuming and inherently risky, and we may fail to demonstrate safety and efficacy to the satisfaction of applicable regulatory authorities, and may never obtain regulatory approval for, or successfully commercialize certain of our product candidates.

Clinical development is expensive, time consuming and involves significant risk. We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, if at all. A failure of one or more clinical trials can occur at any stage of development. Events that may prevent successful or timely completion of clinical development include but are not limited to:

- inability to generate satisfactory preclinical, toxicology or other in vivo or in vitro data or to develop diagnostics capable of supporting the initiation or continuation of clinical trials;
- delays in reaching agreement on acceptable terms with clinical research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- delays or failure in obtaining required institutional review board, or IRB, approval at each clinical trial site;
- failure to obtain or delays in obtaining a permit from regulatory authorities to conduct a clinical trial;
- delays in recruiting or failure to recruit sufficient eligible patients in our clinical trials;
- failure by clinical sites or CROs or other third parties to adhere to clinical trial requirements;
- failure by our clinical sites, CROs or other third parties to perform in accordance with the good clinical practices requirements of the FDA or applicable foreign regulatory guidelines;

- patients withdrawing from our clinical trials;
- adverse events or other issues of concern significant enough for the FDA, or comparable foreign regulatory authority, to put an IND, on clinical hold;
- occurrence of adverse events associated with our product candidates;
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols;
- the cost of clinical trials of our product candidates;
- negative or inconclusive results from our clinical trials which may result in us deciding, or regulators requiring us, to conduct additional clinical trials or abandon development programs in other ongoing or planned indications for a product candidate; and
- delays in reaching agreement on acceptable terms with third-party manufacturers and the time for manufacture of sufficient quantities of our product candidates for use in clinical trials.

Any inability to successfully complete clinical development and obtain regulatory approval for one or more of our product candidates could result in additional costs to us or impair our ability to generate revenue. In addition, if we make manufacturing or formulation changes to our product candidates, we may need to conduct additional nonclinical studies and/or clinical trials to show that the results obtained from such new formulation are consistent with previous results obtained. Clinical trial delays could also shorten any periods during which our products have patent protection and may allow competitors to develop and bring products to market before we do, which could impair our ability to successfully commercialize our product candidates and may harm our business and results of operations.

The approach we are taking to discover and develop next generation immunotoxin therapies (called ETBs) is unproven and may never lead to marketable products.

The scientific discoveries that form the basis for our efforts to discover and develop our product candidates are relatively recent. To date, neither we nor any other company has received regulatory approval to market therapeutics utilizing ETBs. The scientific evidence to support the feasibility of developing drugs based on these discoveries is both preliminary and limited. Successful development of ETB therapeutic products by us will require solving a number of issues, including identifying appropriate receptor targets, screening for and selecting potent and safe ETB drug candidates, developing a commercially feasible manufacturing process, successfully completing all required preclinical studies and clinical trials, successfully implementing all other requirements that may be mandated by regulatory agencies from clinical development through post-marketing periods, ensuring intellectual property protection in any territory where an ETB may be commercialized and commercializing an ETB successfully in a competitive product landscape. In addition, any product candidates that we develop may not demonstrate in patients the biological and pharmacological properties ascribed to them in laboratory and preclinical testing, and they may interact with human biological systems in unforeseen, ineffective or even harmful ways. If we do not successfully develop and commercialize one or more product candidates based upon this technological approach, we may not become profitable and the value of our capital stock may decline.

Further, our focus on ETB technology for developing product candidates as opposed to multiple, more proven technologies for drug development increases the risk associated with our business. If we are not successful in developing an approved product using ETB technology, we may not be able to identify and successfully implement an alternative product development strategy. In addition, work by other companies pursuing similar immunotoxin technologies may encounter setbacks and difficulties that regulators and investors may attribute to our product candidates, whether appropriate or not.

We are heavily dependent on the success of our product candidates, the most advanced of which is in the early stages of clinical development. Our ETB therapeutic product candidates are based on a relatively novel technology, which makes it difficult to predict the time and cost of development and of subsequently obtaining regulatory approval, if at all. Some of our product candidates have produced results in preclinical settings to date, or for other indications than those for which we contemplate conducting development and seeking FDA approval, and we cannot give any assurance that we will generate data for any of our product candidates sufficient to receive regulatory approval in our planned indications, which will be required before they can be commercialized. To date, no ETB therapeutics have been approved in the United States or elsewhere worldwide.

We have concentrated our research and development efforts to date on a limited number of product candidates based on our ETB therapeutic platform and identifying our initial targeted disease indications. We have invested substantially all of our efforts and financial resources to identify, acquire and develop our portfolio of product candidates. Our future success is dependent on our ability to successfully further develop, obtain regulatory approval for, and commercialize one or more product candidates. We currently generate no revenue from sales of any products, and we may never be able to develop or commercialize a product candidate. We currently have one ETB product candidate, MT-3724, in an initiated Phase II combination study with Gemcitabine and Oxaliplatin (GEMOX), and the remainder of our product candidates are in preclinical development. MT-3724 has only been administered in

patients with non-Hodgkin's lymphoma. This is only one of the multiple indications for which we plan to develop this product candidate. There can be no assurance that we will not experience problems or delays in developing our product candidates and that such problems or delays will not cause unanticipated costs, or that any such development problems can be solved. Additionally, our clinical and preclinical data to date is not validated and we have no way of knowing if after validation our clinical trial data will be complete and consistent. There can be no assurance that the data that we develop for our product candidates in our planned indications will be sufficient to obtain regulatory approval.

None of our ETB product candidates have advanced into a pivotal clinical trial for our proposed indications and it may be years before any such clinical trial is initiated and completed, if at all. We are not permitted to market or promote any of our product candidates before we receive regulatory approval from the FDA or comparable foreign regulatory authorities, and we may never receive such regulatory approval for any of our product candidates. We cannot be certain that any of our product candidates will be successful in clinical trials or receive regulatory approval. Further, our product candidates may not receive regulatory approval even if they are successful in clinical trials. If we do not receive regulatory approvals for our product candidates, we may not be able to continue our operations.

Additionally, the FDA and comparable foreign regulatory authorities have relatively limited experience with ETB therapeutics. No regulatory authority has granted approval to any person or entity, including us, to market or commercialize ETB therapeutics, which may increase the complexity, uncertainty and length of the regulatory approval process for our product candidates. If our ETB product candidates fail to prove to be safe, effective or commercially viable, our product candidate pipeline would have little, if any, value, which would have a material adverse effect on our business, financial condition or results of operations.

The clinical trial and manufacturing requirements of the FDA, the European Medicines Agency, or the EMA, and other regulatory authorities, and the criteria these regulators use to determine the safety and efficacy of a product candidate, vary substantially according to the type, complexity, novelty and intended use and market of the product candidate. The regulatory approval process for novel product candidates such as ETB therapeutics can be more expensive and take longer than for other, better known or more extensively studied product candidates. It is difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our product candidates in either the United States or the European Union or how long it will take to commercialize our product candidates, even if approved for marketing. Approvals by the European Commission may not be indicative of what the FDA may require for approval, and vice versa, and different or additional preclinical studies and clinical trials may be required to support regulatory approval in each respective jurisdiction. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product candidate to market could decrease our ability to generate sufficient product revenue, and our business, financial condition, results of operations and prospects may be harmed.

We may find it difficult or fail to enroll patients in our clinical trials given the limited number of patients who have the diseases for which our product candidates are being studied, which could delay or prevent clinical trials of our product candidates.

Identifying and qualifying patients to participate in clinical trials of our ETB product candidates is essential to our success. The timing of our clinical trials depends in part on the rate at which we can recruit patients to participate in clinical trials of our product candidates, and we may experience delays in our clinical trials if we encounter difficulties in enrollment.

The eligibility criteria of our planned clinical trials may further limit the available eligible trial participants as we expect to require that patients have specific characteristics that we can measure or meet the criteria to assure their conditions are appropriate for inclusion in our clinical trials. For instance, our Phase II combination study of MT-3724 with GEMOX includes patients with non-Hodgkin's lymphoma. The estimated incidence of non-Hodgkin's lymphoma in the United States is 74,680 new cases and approximately 19,910 deaths were attributable to non-Hodgkin's B-cell lymphomas in 2018. We may not be able to identify, recruit and enroll a sufficient number of patients to complete our clinical trials in a timely manner because of the perceived risks and benefits of the product candidate under study, the availability and efficacy of competing therapies and clinical trials, and the willingness of physicians to participate in our planned clinical trials. If patients are unwilling to participate in our clinical trials for any reason, the timeline for conducting trials and obtaining regulatory approval of our product candidates may be delayed.

If we experience delays in the completion of, or termination of, any clinical trials of our product candidates, the commercial prospects of our product candidates could be harmed, and our ability to generate product revenue from any of these product candidates could be delayed or prevented. In addition, any delays in completing our clinical trials would likely increase our overall costs, impair product candidate development and jeopardize our ability to obtain regulatory approval relative to our current plans. Any of these occurrences may harm our business, financial condition, and prospects significantly.

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

Undesirable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay, or terminate clinical trials or result in a restrictive label or delay regulatory approval.

In addition, our MT-3724 product candidate has been studied in only a limited number of patients with a confirmed diagnosis of non-Hodgkin's lymphoma, and the most common adverse events were peripheral edema, diarrhea, myalgia, cough, fatigue, constipation, nausea, anemia, stomatitis, pyrexia, dizziness, headache, insomnia, dyspnea, neutropenia, thrombocytopenia, blurry vision, dysphagia, oral pain, chills, pneumonia, dehydration, hypoalbuminemia, hyponatremia, dysgeusia, oropharyngeal pain, and maculo-papular rash. We may experience a higher rate or severity of adverse events and comparable or higher rates of discontinuation in testing in our future clinical trials. There is no guarantee that additional or more severe side effects will not be identified through ongoing clinical trials of our product candidates for current and other indications. Undesirable side effects and negative results for any of our product candidates may negatively impact the development and potential for approval of our product candidates for their proposed indications.

Additionally, even if one or more of our product candidates receives marketing approval, and we or others later identify undesirable side effects caused by such products, potentially significant negative consequences could result, including but not limited to:

- regulatory authorities may withdraw approvals of such products;
- regulatory authorities may require additional warnings on the label;
- we may be required to create a REMS plan, which could include a medication guide outlining the risks of such side effects for distribution to patients, a communication plan for healthcare providers, and/or other elements to assure safe use;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of a product candidate, even if approved, and could significantly harm its business, results of operations, and prospects.

Our product development program may not discover all possible adverse events that patients who take MT-3724 or our other product candidates may experience. The number of subjects exposed to MT-3724 or our other product candidates and the average exposure time in the clinical development program may be inadequate to detect all adverse events, or chance findings, that may only be detected once the product is administered to more patients and for greater periods of time.

Clinical trials by their nature utilize a sample of the potential patient population. However, with a limited number of subjects and limited duration of exposure, we cannot be fully assured all severe side effects of MT-3724 or our other product candidates will be uncovered. Such severe side effects may only be uncovered with a significantly larger number of patients exposed to the drug. If such safety problems occur or are identified after MT-3724 or another product candidate reaches the market, the FDA, or comparable foreign regulatory authority, may require that we amend the labeling of the product or temporarily cease marketing the product, or may even withdraw approval for the product.

Our ETB therapeutic approach is novel and negative public opinion and increased regulatory scrutiny of ETB-based therapies may damage public perception of the safety of our product candidates and adversely affect our ability to conduct our business or obtain regulatory approvals for our product candidates.

ETB therapy remains a novel technology, with no ETB therapy product approved to date in the United States or elsewhere worldwide. Public perception may be influenced by claims that ETB therapy is unsafe, and ETB therapy may not gain the acceptance of the public or the medical community. In particular, our success will depend upon physicians who specialize in the treatment of the diseases targeted by our product candidates prescribing treatments that involve the use of one or more of our approved product candidates in lieu of, or in addition to, existing treatments with which they are familiar and for which greater clinical data may be available. More restrictive government regulations or negative public opinion regarding ETB-based therapeutics could have an adverse effect on our business, financial condition or results of operations and may delay or impair the development and commercialization of our product candidates or demand for any products we may develop. Serious Adverse Events in ETB clinical trials for our competitors' products, even if not ultimately attributable to the relevant product candidates, and the resulting publicity, could result in increased government regulation, unfavorable public perception, potential regulatory delays in the testing or approval of our product candidates, stricter labeling requirements for those product candidates that are approved and a decrease in demand for any such product candidates.

Product development involves a lengthy and expensive process with an uncertain outcome, and results of earlier preclinical studies and clinical trials may not be predictive of future clinical trial results.

Clinical testing is expensive and generally takes many years to complete, and the outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of larger, later-stage controlled clinical trials. Product candidates that have shown promising results in early-stage clinical trials may still suffer significant setbacks or failure in subsequent clinical trials. Our clinical trial to date has been conducted on a small number of patients in limited numbers of clinical sites for a limited number of indications. We will have to conduct larger, well-controlled trials in our proposed indications to verify the results obtained to date and to support any regulatory submissions for further clinical development. A number of companies in the biopharmaceutical industry have suffered significant setbacks or failure in advanced clinical trials due to lack of efficacy or adverse safety profiles despite promising results in earlier, smaller clinical trials.

Moreover, clinical data is often susceptible to varying interpretations and analyses. We do not know whether any Phase I, Phase II, Phase III or other clinical trials we may conduct will demonstrate consistent or adequate efficacy and safety with respect to the proposed indication for use sufficient to receive regulatory approval or market our drug candidates.

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 financial and human resources, we may forego or delay pursuit of opportunities with some programs or product candidates or for other 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 more profitable market opportunities. Our spending on current and future research and development programs and future product candidates for specific indications may not yield any commercially viable products. We may also enter into additional strategic collaboration agreements to develop and commercialize some of our programs and potential product candidates in indications with potentially large commercial markets. 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 collaborations, 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 may face potential product liability, and, if successful claims are brought against us, we may incur substantial liability and costs. If the use or misuse of our product candidates harms patients or is perceived to harm patients even when such harm is unrelated to our product candidates, our regulatory approvals, if any, could be revoked or otherwise negatively impacted and we could be subject to costly and damaging product liability claims. If we are unable to obtain adequate insurance or are required to pay for liabilities resulting from a claim excluded from, or beyond the limits of, our insurance coverage, a material liability claim could adversely affect our financial condition.

The use or misuse of our product candidates in clinical trials and the sale of any products for which we may obtain marketing approval exposes us to the risk of potential product liability claims. Product liability claims might be brought against us by consumers, healthcare providers, pharmaceutical companies or others selling or otherwise coming into contact with our product candidates and approved products, if any. There is a risk that our product candidates may induce adverse events. If we cannot successfully defend against product liability claims, we could incur substantial liability and costs. Some of our ETB therapeutics have shown in clinical trials adverse events, including peripheral edema, diarrhea, myalgia, cough, fatigue, constipation, nausea, anemia, stomatitis, pyrexia, dizziness, headache, insomnia, dyspnea, neutropenia, thrombocytopenia, blurry vision, dysphagia, oral pain, chills, pneumonia, dehydration, hypoalbuminemia, hyponatremia, dysgeusia, oropharyngeal pain, and maculo-papular rash, among others. There is a risk that our future product candidates may induce similar or more severe adverse events. Patients with the diseases targeted by our product candidates may already be in severe and advanced stages of disease and have both known and unknown significant preexisting and potentially life-threatening health risks. During the course of treatment, patients may suffer adverse events, including death, for reasons that may be related to our product candidates. Such events could subject us to costly litigation, require us to pay substantial amounts of money to injured patients, delay, negatively impact or end our opportunity to receive or maintain regulatory approval to market our products, or require us to suspend or abandon our commercialization efforts. Even in a circumstance in which an adverse event is unrelated to our product candidates, the investigation into the circumstance may be time-consuming or inconclusive. These investigations may delay our regulatory approval process or impact and limit the type of regulatory approvals our product candidates receive or maintain. As a result of these factors, a product liability claim, even if successfully defended, could have a material adverse effect on our business, financial condition or results of operations.

Although we have product liability insurance covering our clinical trials in the United States for up to $5.0 million per occurrence up to an aggregate limit of $5.0 million, our insurance may be insufficient to reimburse us for any expenses or losses we may suffer. We also will likely be required to increase our product liability insurance coverage for the advanced clinical trials that we plan to initiate. If we obtain marketing approval for any of our product candidates, we will need to expand our insurance coverage to include the sale of commercial products. There is no way to know if we will be able to continue to obtain product liability coverage and obtain expanded coverage if we require it, in sufficient amounts to protect us against losses due to liability, on acceptable terms, or at all. We may not have sufficient resources to pay for any liabilities resulting from a claim excluded from, or beyond the limits of, our insurance coverage. Where we have provided indemnities in favor of third parties under our agreements with them, there is also a risk that these third parties could incur liability and bring a claim under such indemnities. An individual may bring a product liability claim against us alleging that one of our product candidates causes, or is claimed to have caused, an injury or is found to be unsuitable for consumer use. 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 and breach of warranties. Claims also could be asserted under state consumer protection acts. Any product liability claim brought against us, with or without merit, could result in:

- withdrawal of clinical trial volunteers, investigators, patients or trial sites or limitations on approved indications;
- the inability to commercialize, or if commercialized, decreased demand for, our product candidates;
- if commercialized, product recalls, withdrawals of labeling, marketing or promotional restrictions or the need for product modification;
- initiation of investigations by regulators;
- loss of revenues;
- substantial costs of litigation, including monetary awards to patients or other claimants;
- liabilities that substantially exceed our product liability insurance, which we would then be required to pay ourselves;
- an increase in our product liability insurance rates or the inability to maintain insurance coverage in the future on acceptable terms, if at all;
- the diversion of management's attention from our business; and
- damage to our reputation and the reputation of our products and our technology.

Product liability claims may subject us to the foregoing and other risks, which could have a material adverse effect on our business, financial condition or results of operations.

Our international activities, including clinical trials abroad, expose us to various risks, any number of which could harm our business.

We are subject to the risks inherent in engaging in business across national boundaries, due in part to our clinical trials abroad, any one of which could adversely impact our business. In addition to currency fluctuations, these risks include, among other things: economic downturns; changes in or interpretations of local law, governmental policy or regulation; restrictions on the transfer of funds into or out of the country; varying tax systems; and government protectionism. One or more of the foregoing factors could impair our current or future operations and, as a result, harm our overall business.

Risks Related to Regulatory Approval of Our Product Candidates and Other Legal Compliance Matters

A potential breakthrough therapy designation by the FDA for our product candidates may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.

We may seek a breakthrough therapy designation from the FDA for some of our product candidates. A breakthrough therapy is defined as a drug or biological product that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the drug or biological product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For drugs or biological products that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of a clinical trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Drugs designated as breakthrough therapies by the FDA could also be eligible for accelerated approval.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a breakthrough therapy designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under conventional or other accelerated FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify and are designated as breakthrough therapies, the FDA may later decide that the drugs or biological products no longer meet the conditions for designation and the designation may be rescinded.

We may seek Fast Track designation for one or more of our product candidates, but we might not receive such designation, and even if we do, such designation may not actually lead to a faster development or regulatory review or approval process.

If a product candidate is intended for the treatment of a serious condition and nonclinical or clinical data demonstrate the potential to address unmet medical need for this condition, a product sponsor may apply for FDA Fast Track designation. If we seek Fast Track designation for a product candidate, we may not receive it from the FDA. However, even if we receive Fast Track designation, Fast Track designation does not ensure that we will receive marketing approval or that approval will be granted within any particular time frame. We may not experience a faster development or regulatory review or approval process with Fast Track designation compared to conventional FDA procedures. In addition, the FDA may withdraw Fast Track designation if the designation is no longer supported by data from our clinical development program. Fast Track designation alone does not guarantee qualification for the FDA's priority review procedures.

Even if we obtain regulatory approval for a product, we will remain subject to ongoing regulatory requirements.

If any of our product candidates are approved, we will be subject to ongoing regulatory requirements with respect to manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, conduct of post-marketing clinical trials and submission of safety, efficacy and other post-approval information, including both federal and state requirements in the United States and requirements of comparable foreign regulatory authorities.

Manufacturers and manufacturers' facilities are required to continuously comply with FDA and comparable foreign regulatory authority requirements, including ensuring that quality control and manufacturing procedures conform to current good manufacturing practices, or cGMP, regulations and corresponding foreign regulatory manufacturing requirements. As such, we and our contract manufacturers will be subject to continual review and inspections to assess compliance with cGMP and adherence to commitments made in any NDA or marketing authorization application.

Any regulatory approvals that we receive for our product candidates may be subject to limitations on the approved indicated uses for which the product candidate may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase IV clinical trials, and surveillance to monitor the safety and efficacy of the product candidate. We will be required to report adverse reactions and production problems, if any, to the FDA and comparable foreign regulatory authorities. Any new legislation addressing drug safety issues could result in delays in product development or commercialization, or increased costs to assure compliance. If our original marketing approval for a product candidate was obtained through an accelerated approval pathway, we could be required to conduct a successful post-marketing clinical trial in order to confirm the clinical benefit for our products. An unsuccessful post-marketing clinical trial or failure to complete such a trial could result in the withdrawal of marketing approval.

If a regulatory agency discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, or disagrees with the promotion, marketing or labeling of a product, the regulatory agency may impose restrictions on that product or us, including requiring withdrawal of the product from the market. If we fail to comply with applicable regulatory requirements, a regulatory agency or enforcement authority may, among other things:

- issue warning letters;
- impose civil or criminal penalties;
- suspend or withdraw regulatory approval;
- suspend any of our ongoing clinical trials;
- refuse to approve pending applications or supplements to approved applications submitted by us;
- impose restrictions on our operations, including closing our contract manufacturers' facilities; or
- require a product recall.

Any government investigation of alleged violations of law would be expected to require us to expend significant time and resources in response and could generate adverse publicity. Any failure to comply with ongoing regulatory requirements may significantly and adversely affect our ability to develop and commercialize our products and our value and our operating results would be adversely affected.

Healthcare legislative reform measures may have a material adverse effect on our business, financial condition or results of operations.

In the United States, there have been and continue to be a number of legislative initiatives to contain healthcare costs. For example, in March 2010, the Health Care and Education Reconciliation Act of 2010, which amended the Patient Protection and Affordable Care Act, or collectively the ACA, was passed. The ACA was intended to substantially change the way health care is financed by both governmental and private insurers, and significantly impacts the U.S. pharmaceutical industry. The ACA, among other things, addresses a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected, increases the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extends the rebate program to individuals enrolled in Medicaid managed care organizations, establishes annual fees and taxes on manufacturers of specified branded prescription drugs, and promotes a new Medicare Part D coverage gap discount program.

The current administration supports a repeal of the ACA and an Executive Order has been signed mandating that federal agencies try to waive or delay requirements of the ACA that impose economic or regulatory burdens on states, families, the health-care industry and others. The Executive Order also declares that the administration will seek the "prompt repeal" of the law and that the government should prepare to "afford the States more flexibility and control to create a more free and open healthcare market." At this time, the immediate impact of the Executive Order is not clear.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted, and we expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand or lower pricing for our product candidates or additional pricing pressures.

We expect that the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we will receive for any approved product. Any reduction in payments from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We cannot be sure whether additional legislative changes will be enacted, or whether FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals, if any, of our product candidates, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing conditions and other requirements.

We may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, and health information privacy and security laws. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.

If we obtain FDA approval for any of our product candidates and begin commercializing those products in the United States, our operations will be subject to various federal and state fraud and abuse laws, including, the federal Anti-Kickback Statute, the federal False Claims Act, and physician sunshine laws and regulations. These laws may impact, among other things, our proposed sales, marketing and education programs. In addition, we may be subject to patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce, or in return for, the purchase or recommendation of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs;
- federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid or other third-party payors that are false or fraudulent;

- the Health Insurance Portability and Accountability Act of 1996, which created new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;
- the federal physician payment transparency requirements, sometimes referred to as the "Sunshine Act" under the ACA, which requires manufacturers of drugs, devices, biologics and medical supplies to report annually to the U.S. Department of Health and Human Services information related to payments and other transfers of value to physicians, other healthcare providers and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members and applicable group purchasing organizations; and
- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws that may apply to items or services reimbursed by any third-party payor, including governmental and private payors, to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures, and state laws governing the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. In addition, recent health care reform legislation has strengthened these laws. For example, the Health Care Reform Law, among other things, amends the intent requirement of the federal Anti-Kickback Statute and criminal healthcare fraud statute. A person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it. Moreover, the ACA provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act.

If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government health care programs, such as Medicare and Medicaid, imprisonment, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Reliance on government funding for our programs may add uncertainty to our research and commercialization efforts with respect to those programs that are tied to such funding and may impose requirements that limit our ability to take certain actions, increase the costs of commercialization and production of product candidates developed under those programs and subject us to potential financial penalties, which could materially and adversely affect our business, financial condition and results of operations.

During the course of our development of our lead product candidate, we have been funded in significant part through state grants, including but not limited to the substantial funding we have received from the Cancer Prevention & Research Institute of Texas, or CPRIT. We entered our first CPRIT award grant contract on November 7, 2012 (the "2012 CPRIT Agreement"). On September 18, 2018, we entered into a second CPRIT award grant contract for our MT-4019 program (the "2018 CPRIT Agreement"). In addition to the funding we have received to date, we have applied and intend to continue to apply for federal and state grants to receive additional funding in the future, which may or may not be successful. Contracts and grants funded by the U.S. government, state governments and their related agencies, including our contracts with the State of Texas pertaining to funds we have already received, include provisions that reflect the government's substantial rights and remedies, many of which are not typically found in commercial contracts, including powers of the government to:

- require repayment of all or a portion of the grant proceeds, in certain cases with interest, in the event we violate certain covenants pertaining to various matters that include any potential relocation outside of the State of Texas, failure to achieve certain milestones or to comply with terms relating to use of grant proceeds, or failure to comply with certain laws;
- terminate agreements, in whole or in part, for any reason or no reason;
- reduce or modify the government's obligations under such agreements without the consent of the other party;
- claim rights, including certain intellectual property rights, in products and data developed under such agreements;
- audit contract-related costs and fees, including allocated indirect costs;
- suspend the contractor or grantee from receiving new contracts pending resolution of alleged violations of procurement laws or regulations;

- impose State of Texas or U.S. manufacturing requirements for products that embody inventions conceived or first reduced to practice under such agreements;
- impose qualifications for the engagement of manufacturers, suppliers and other contractors as well as other criteria for reimbursements;
- suspend or debar the contractor or grantee from doing future business with the government;
- control and potentially prohibit the export of products;
- pursue criminal or civil remedies under the False Claims Act, False Statements Act and similar remedy provisions specific to government agreements; and
- limit the government's financial liability to amounts appropriated by the State of Texas on a fiscal-year basis, thereby leaving some uncertainty about the future availability of funding for a program even after it has been funded for an initial period.
- In addition to those powers set forth above, the government funding we may receive could also impose requirements to make payments based upon sales of our products in the future. For example, under the terms of our 2018 CPRIT Award, we are required to pay CPRIT a percentage of our revenues from sales of products directly funded by CPRIT, or received from our licensees or sub licensees, at a percentage in the low to mid-single digits until the aggregate amount of such payments equals 400% of the funds we receive from CPRIT, and thereafter at a rate of one-half percent..

We may not have the right to prohibit the State of Texas or, if relevant under possible future federal grants, the U.S. government, from using certain technologies developed by us, and we may not be able to prohibit third-party companies, including our competitors, from using those technologies in providing products and services to the U.S. government. The U.S. government generally takes the position that it has the right to royalty-free use of technologies that are developed under U.S. government contracts. These and other provisions of government grants may also apply to intellectual property we license now or in the future.

In addition, government contracts and grants normally contain additional requirements that may increase our costs of doing business, reduce our profits and expose us to liability for failure to comply with these terms and conditions. These requirements include, for example:

- specialized accounting systems unique to government contracts and grants;
- mandatory financial audits and potential liability for price adjustments or recoupment of government funds after such funds have been spent;
- public disclosures of certain contract and grant information, which may enable competitors to gain insights into our research program; and
- mandatory socioeconomic compliance requirements, including labor standards, non-discrimination and affirmative action programs and environmental compliance requirements.

If we fail to maintain compliance with any such requirements that may apply to us now or in the future, we may be subject to potential liability and to termination of our contracts.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on our business, financial condition or results of operations.

Our research and development activities and our third-party manufacturers' and suppliers' activities involve the controlled storage, use, and disposal of hazardous materials, including the components of our product candidates and other hazardous compounds. We and our manufacturers and suppliers are subject to laws and regulations governing the use, manufacture, storage, handling, and disposal of these hazardous materials. In some cases, these hazardous materials and various wastes resulting from their use are stored at our and our manufacturers' facilities pending their use and disposal. We cannot eliminate the risk of contamination, which could cause an interruption of our commercialization efforts, research and development efforts and business operations; environmental damage resulting in costly clean-up; and liabilities under applicable laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products. Although we believe that the safety procedures utilized by us and our third-party manufacturers for handling and disposing of these materials generally comply with the standards prescribed by these laws and regulations, we cannot guarantee that this is the case or eliminate the risk of accidental contamination or injury from these materials. In such an event, we may be held liable for any resulting damages and such liability could exceed our resources and state or federal or other applicable authorities may curtail our use of specified materials and/or interrupt our business operations. Furthermore, environmental laws and regulations are complex, c hange frequently, and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance. We do not currently carry biological or hazardous waste insurance coverage.

The recently passed comprehensive tax reform bill could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law the "Tax Cuts and Jobs Act," or TCJA, that significantly reforms the Code. The TCJA, among other things, includes changes to U.S. federal tax rates, imposes significant additional limitations on the deductibility of interest and NOL carryforwards, allows for the expensing of capital expenditures, and puts into effect the migration from a "worldwide" system of taxation to a territorial system. We continue to examine the impact this tax reform legislation may have on our business. Our net deferred tax assets and liabilities will be revalued at the newly enacted U.S. corporate rate, and the impact, if any, will be recognized in our tax expense in the year of enactment. We continue to examine the impact this tax reform legislation may have on our business. The overall impact of the TCJA is uncertain and our business and financial condition could be adversely affected. The impact of this reform on our stockholders is uncertain. We urge our stockholders to consult with their legal and tax advisors with respect to such legislation and the potential tax consequences of investing in our common stock.

Risks Related to Our Intellectual Property

Our ability to compete may decline if we are unable to establish intellectual property rights or if our intellectual property rights are inadequate to protect our ETB technology, present and future product candidates and related processes for our developmental pipeline.

We rely or will rely upon a combination of patents, trade secret protection, and confidentiality agreements to protect our intellectual property related to our technologies and product candidates. Our commercial success and viability depends in large part on our and any current and potential future licensors' ability to obtain, maintain and enforce patent and other intellectual property protections in the United States, Europe and other countries worldwide with respect to our current and future proprietary technologies and product candidates. If we or our current or future collaboration partners do not adequately protect such intellectual property, competitors may be able to use our technologies and erode or negate any competitive advantage we may have, which could materially harm our business, negatively affect our position in the marketplace, limit our ability to commercialize product candidates and delay or render impossible our achievement of profitability.

Our strategy and future prospects are based, in particular, on our patent portfolio. We and our current and future collaboration partners or licensees will best be able to protect our proprietary ETB technologies, product candidates and their uses from unauthorized use by third parties to the extent that valid and enforceable patents, other regulatory exclusivities or effectively protected trade secrets, cover them. We have sought to protect our proprietary position by filing patent applications in the United States and elsewhere worldwide related to our proprietary ETB technologies, product candidates and methods of use that are important to our business. This process is expensive and time consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain meaningful patent protection.

Intellectual property rights have limitations and do not necessarily address all potential threats to our competitive advantage. Our ability to obtain patent protection for our proprietary technologies, product candidates and their uses is uncertain and the degree of future protection afforded by our intellectual property rights is uncertain due to a number of factors, including, but not limited to:

- we or our current or future collaboration partners may not have been the first to make the inventions covered by pending patent applications or issued patents;
- we or our current or future collaboration partners may not have been the first to file patent applications covering our ETB technology, product candidates, compositions or their uses;
- others may independently develop identical, similar or alternative methods, products, product candidates or compositions and uses thereof;
- we or our current or future collaboration partners' disclosures in patent applications may not be sufficient to meet the statutory requirements for patentability;
- any or all of our or our current or future collaboration partners' pending patent applications may not result in issued patents;
- we or our current or future collaboration partners may not seek or obtain patent protection in countries that may eventually provide us with a significant business opportunity;
- any patents issued to us or our current or future collaboration partners may not provide a basis for commercially viable products, may not provide any competitive advantages or may be successfully challenged by third parties;
- we or our current or future collaboration partners' products, product candidates, compositions, methods or uses thereof may not be patentable;

- others may design around our or our current or future collaboration partners' patent claims to produce competitive products or uses which fall outside of the scope of our patents or other intellectual property rights;
- others may identify prior art or other bases which could invalidate our or our current or future collaboration partners' patents;
- our competitors might conduct research and development activities in the United States and other countries that provide a safe harbor from patent infringement claims for certain research and development activities, as well as in countries where we or our current or future collaboration partners do not have patent rights, and then use the information learned from such activities to develop competitive products for sale in major commercial markets; or
- we or our current or future collaboration partners may not develop additional proprietary technologies or products that are patentable.

Further, the patent position of biotechnology and pharmaceutical companies generally is highly uncertain and involves complex legal and factual questions for which legal principles remain unsolved. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our product candidates or their uses in the United States or in other foreign countries. There is no assurance that all potentially relevant prior art relating to our patents and patent applications has been found, which can invalidate a patent or prevent a patent from issuing from a pending patent application. Even if patents do successfully issue, and even if such patents cover our product candidates or their uses, third parties may challenge their validity, enforceability or scope, which may result in such patents being narrowed, found unenforceable or invalidated. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property, provide exclusivity for our product candidates or prevent others from designing around our claims. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

We, independently or together with our licensors, have filed several patent applications covering various aspects of our ETB technology, product candidates and associated assays and uses. We cannot offer any assurances about which, if any, patents will issue, the breadth of any such patent or whether any issued patents will be found invalid and unenforceable or will be threatened by third parties. Any successful opposition or challenge to these patents or any other patents owned by or licensed to us after patent issuance could deprive us of rights necessary for the successful commercialization of any product candidates that we may develop. Further, if we encounter delays in regulatory approvals, the period of time during which we could market a product candidate under patent protection could be reduced.

If we cannot obtain and maintain effective protection of exclusivity from our regulatory efforts and intellectual property rights, including patent protection or data or market exclusivity for our product candidates or their uses, we may not be able to compete effectively and our business and results of operations would be harmed.

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

Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop our own products and may also export infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. 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 rights in foreign jurisdictions. The legal systems of some countries, particularly some developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to healthcare, medicine, or biotechnology 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. Proceedings to enforce our patent rights in foreign jurisdictions, whether or not successful, 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. 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 not have sufficient patent terms and regulatory exclusivity protections for our product candidates to effectively protect our competitive position.

Patents have a limited term. In the United States and most jurisdictions worldwide, the statutory expiration of a non-provisional patent is generally 20 years after it is first filed. Although various extensions may be available, the life of a patent, and the protection it affords, is limited. Even if patents covering our technologies, product candidates and associated uses are obtained, once the patent life has expired for a product candidate, we may be open to competition from generic, biosimilar or biobetter medications.

Patent term extensions under the Hatch-Waxman Act in the United States, and regulatory extensions in Japan and certain other countries, and under Supplementary Protection Certificates in Europe, may be available to extend the patent or market or data exclusivity terms of our product candidates depending on the timing and duration of the regulatory review process relative to patent term. In addition, upon issuance in the United States, any patent term may be adjusted based on specified delays during patent prosecution caused by the applicant(s) or the United States Patent and Trademark Office, or the USPTO. We will likely rely on patent term extensions, and we cannot provide any assurances that any such patent term extensions will be obtained and, if so, for how long. As a result, we may not be able to maintain exclusivity for our product candidates for an extended period after regulatory approval, if any, which would negatively impact our business, financial condition, results of operations and prospects. If we do not have sufficient patent terms or regulatory exclusivity to protect our product candidates, our business and results of operations will be adversely affected.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products, and recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

As is the case with other biotechnology companies, our success is heavily dependent on patents. Obtaining and enforcing patents in the biotechnology industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. In addition, the United States 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 specified circumstances and weakened the rights of patent owners in specified 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 our U.S. patent applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law. On September 16, 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted and may also affect patent litigation. The USPTO has promulgated regulations and developed procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first inventor to file provisions, did not come into effect until March 16, 2013. The Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition or results of operations.

An important change introduced by the Leahy-Smith Act is that, as of March 16, 2013, the United States transitioned to a “first-inventor-to-file” system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. A third party that filed or files a patent application in the USPTO after March 16, 2013 but before we file an application could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by the third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Furthermore, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our technology and the prior art allow our technology to be patentable over the prior art. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to either (i) file any patent application related to our product candidates or (ii) invent any of the inventions claimed in our patents or patent applications.

Among some of the other changes introduced by the Leahy-Smith Act are changes that limit where a patentee may file a patent infringement suit and new procedures providing opportunities for third parties to challenge any issued patent in the USPTO. Included in these new procedures is a process known as inter partes review, or IPR, which has been generally used by many third parties to invalidate patents. The IPR process is not limited to patents filed after the Leahy-Smith Act was enacted, and would therefore be available to a third party seeking to invalidate any of our U.S. patents, even those issued or filed before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in U.S. federal court necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action.

Issued patents covering our ETB technologies, product candidates and uses could be found invalid or unenforceable if challenged in court.

Even if our or our current or future collaboration partners' patents do successfully issue and even if such patents cover our product candidates and methods of use, third parties may initiate interference, re-examination, post-grant review, IPR or derivation actions in the U.S. Patent and Trademark Office, or USPTO; may initiate third party oppositions in the European Patent Office, or EPO; or may initiate similar actions challenging the validity, enforceability or scope of such patents in other patent administrative proceedings worldwide, which may result in patent claims being narrowed or invalidated. Such proceedings could result in revocation or amendment of our patents in such a way that they no longer cover competitive technologies, product candidates or methods of use. Further, if we initiate legal proceedings against a third party to enforce a patent covering our technologies, product candidates or uses, the defendant could counterclaim that our relevant patent is invalid or unenforceable. In patent litigation in the United States, certain European and other countries worldwide, it is commonplace for defendants to make counterclaims alleging invalidity and unenforceability in the same proceeding, or to commence parallel defensive proceedings such as patent nullity actions to challenge validity and enforceability of asserted patent claims. Further, in the United States, a third party, including a licensee of one of our or our current or future collaboration partners' patents, may initiate legal proceedings against us in which the third party challenges the validity, enforceability, or scope of our patent(s).

In administrative and court actions, grounds for a patent validity challenge may include alleged failures to meet any of several statutory requirements, including lack of novelty, nonobviousness (or inventive step) and, in some cases clarity, adequate written description or non-enablement of, the claimed invention. Grounds for unenforceability assertions include allegations that someone connected with prosecution of the patent withheld relevant information from the Examiner during prosecution in the USPTO, or made a misleading statement during prosecution in the USPTO, the EPO or elsewhere. Third parties also may raise similar claims before administrative bodies in the USPTO or the EPO, even outside the context of litigation. The outcome following legal assertions of invalidity and unenforceability are unpredictable. With respect to patent claim validity, for example, we cannot be certain that there is no invalidating prior art, of which we or the patent examiner was unaware during prosecution. Further, we cannot be certain that all of the potentially relevant art relating to our patents and patent applications has been brought to the attention of every patent office. If a defendant or other patent challenger were to prevail on a legal assertion of invalidity or unenforceability, we could lose at least in part, and perhaps all, of the patent protection on our ETB technology, product candidates and associated uses.

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

Competitors may infringe our patents or the patents of any of our future licensors. If we or one of our licensing partners were to 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 is invalid and/or unenforceable. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, nonobviousness, adequate written description, clarity or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. The outcome following legal assertions of invalidity and unenforceability is unpredictable.

There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the claimed invention at issue on the grounds that our or our current or future collaboration partners' patent claims do not cover the claimed invention. Third parties may in the future make claims challenging the inventorship or ownership of our intellectual property. An adverse outcome in a litigation or proceeding involving one or more of our patents could limit our ability to assert those patents against those parties or other competitors, and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks.

Even if we were to establish infringement of our patent rights by a third party, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. 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 litigation. There could also 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 adversely affect the market price of our common stock. Moreover, there can be no assurance that we will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are concluded and can involve substantial expenses. Even if we ultimately prevail in such claims, the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings.

Interference or derivation proceedings provoked by third parties or brought by us or declared by the USPTO may be necessary to determine the priority or inventorship of inventions with respect to our patents or patent applications or those of any of our future licensors. An unfavorable outcome 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. Our defense of litigation, interference proceedings, or derivation proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. In addition, the uncertainties associated with litigation and administrative proceedings could have a material adverse effect on our ability to raise the funds necessary to continue our clinical trials, continue our research programs, license necessary technology from third parties or enter into development partnerships that would help us bring our product candidates to market.

If we are unable to protect the confidentiality of our trade secrets and know-how for our product candidates or any future product candidates, we may not be able to compete effectively in our proposed markets.

In addition to the protection afforded by patents, we rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce and any other elements of our product candidate discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors.

Although our current employment contracts provide for and we expect all of our employees and consultants to assign their inventions to us, and all of our employees, consultants, advisors, and any third parties who have access to our proprietary know-how, information or technology are expected to enter into confidentiality agreements, we cannot provide any assurances that all such agreements have been duly executed or that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Misappropriation or unauthorized disclosure of our trade secrets could impair our competitive position and may have a material adverse effect on our business, financial condition or results of operations. Additionally, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating trade secrets.

Third-party claims of intellectual property infringement could result in costly litigation or other proceedings and may prevent or delay our development and commercialization efforts.

Our commercial success depends in part on our ability to develop, manufacture, market and sell our product candidates and use our proprietary technology without infringing the patent rights of third parties. We are currently not aware of U.S. or foreign patents or pending patent applications owned by third parties that cover our ETB product candidates or therapeutic uses of those ETB product candidates. In the future, we may identify such third-party U.S. and non-U.S. issued patents and pending applications. If we identify any such patents or pending applications, we may in the future pursue available proceedings in the U.S. and foreign patent offices to challenge the validity of these patents and patent applications. In addition, or alternatively, we may consider whether to seek to negotiate a license of rights to technology covered by one or more of such patents and patent applications. If any patents or patent applications cover our product candidates or technologies or a requisite manufacturing process, we may not be free to manufacture or market our product candidates, including MT-3724, as planned, absent such a license, which may not be available to us on commercially reasonable terms, or at all.

It is also possible that we have failed to identify relevant third-party patents or applications. For example, applications filed before November 29, 2000 and applications filed after that date that will not be filed outside the United States remain confidential until patents issue. Moreover, it is difficult for industry participants, including us, to identify all third-party patent rights that may be relevant to product candidates and technologies because patent searching is imperfect due to differences in terminology among patents, incomplete databases and the difficulty in assessing the meaning of patent claims. We may fail to identify relevant patents or patent applications or may identify pending patent applications of potential interest but incorrectly predict the likelihood that such patent applications may issue with claims of relevance to our technology. In addition, we may be unaware of one or more issued patents that would be infringed by the manufacture, sale or use of a current or future product candidate, or we may incorrectly conclude that a third-party patent is invalid, unenforceable or not infringed by our activities. Additionally, pending patent applications that have been published can, subject to specified limitations, be later amended in a manner that could cover our technologies, our product candidates or the use of our product candidates.

There have been many lawsuits and other proceedings involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, oppositions and reexamination proceedings before the USPTO and corresponding foreign patent offices. Third parties own numerous U.S. and foreign issued patents and pending patent applications in the fields in which we are developing product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may be subject to claims of infringement of the patent rights of third parties.

Parties making patent infringement claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize one or more of our product candidates. Defense of these claims, regardless of their merit, may involve substantial litigation expense and may require a substantial diversion of employee resources from our business. In the event of a successful claim of patent infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, pay royalties, redesign our infringing products or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure.

We may be unsuccessful in obtaining or maintaining third-party rights necessary to develop our ETB technologies or to commercialize our product candidates and associated methods of use through acquisitions and in-licenses.

Presently, we have intellectual property rights to our ETB technologies under patent applications that we own and to certain CD38 targeting antibody domains through our License Agreement (as defined below). Because our programs may involve a range of ETB targets and antibody domains, which in the future may include targets and antibody domains that require the use of proprietary rights held by third parties, the growth of our business may likely depend in part on our ability to acquire, in-license or use these proprietary rights. In addition, our product candidates may require specific formulations or manufacturing technologies to work effectively and be manufactured 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. The licensing and acquisition of third-party intellectual property rights is a competitive area, and a number of more established companies are also pursuing strategies to license or acquire third-party intellectual property rights that we may consider attractive. These established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities.

For example, we have previously and may continue to collaborate with federal, state or international academic institutions to accelerate our preclinical research or development under written agreements with these institutions. Typically, these institutions grant the rights to the collaborator and retain a non-commercial license to all rights as well as march-in rights in the situation that the collaborator fails to exercise or commercialize certain covered technologies. Regardless of such initial rights, we may be unable to exercise or commercialize certain funded technologies thereby triggering march-in rights of the funding institution. If we are unable to do so, the institution may offer the intellectual property rights to other parties, potentially blocking our ability to pursue our program.

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

If we are unable to successfully obtain and maintain rights to required third-party intellectual property, we may have to abandon development of that product candidate or pay additional amounts to the third-party, and our business and financial condition could suffer.

The patent protection and patent prosecution for some of our product candidates may in the future be dependent on third parties.

While we normally have or seek and gain the right to fully prosecute the patent applications relating to our product candidates, there may be times when certain patents or patent applications relating to our product candidates, their uses or their manufacture may be controlled by our future licensors. If any of our future licensors fail to appropriately and broadly prosecute patent applications and maintain patent protection of claims covering any of our product candidates, their uses or their manufacture, our ability to develop and commercialize those product candidates may be adversely affected and we may not be able to prevent competitors from making, using, importing, and selling competing products. In addition, even where we now have the right to control patent prosecution of patent applications or the maintenance of patents we have licensed from third parties in the future, we may still be adversely affected or prejudiced by actions or inactions of our licensors in effect from actions prior to us assuming control over patent prosecution.

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

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

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

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

Data protection laws in Europe and around the world may restrict our activities and increase our costs.

Various statutes and rules in Europe and around the world regulate privacy and data protection which may affect our collection, use, storage, and transfer of information both abroad and in the United States. New laws and regulations are being enacted, so that this area remains in a state of flux. Monitoring and complying with these laws requires substantial financial resources. Failure to comply with these laws may result in, among other things, civil and criminal liability, negative publicity, restrictions on further use of data, and/or liability under contractual warranties. In addition, changes in these laws (including newly released interpretations of these laws by courts and regulatory bodies) may limit our data access, use and disclosure, and may require increased expenditures by us.

The European Union's General Data Protection Regulation, or GDPR, took effect in May 2018 and requires us to meet new and more stringent requirements regarding the handling of personal data about EU residents. Failure to meet the GDPR requirements could result in penalties of up to 4% of worldwide revenue.

Risks Related to Our Reliance on Third Parties

We rely on third parties to conduct our clinical trials, manufacture our product candidates and perform other services. If these third parties do not successfully perform and comply with regulatory requirements, we may not be able to successfully complete clinical development, obtain regulatory approval or commercialize our product candidates, and our business could be substantially harmed.

We have relied upon and plan to continue to rely upon third-party CROs to conduct, monitor and manage our ongoing clinical programs. We rely on these parties for execution of clinical trials and we manage and control only some aspects of their activities. We remain responsible for ensuring that each of our trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on the CROs does not relieve us of our regulatory responsibilities. We and our CROs and

other vendors are required to comply with all applicable laws, regulations and guidelines, including those required by the FDA and comparable foreign regulatory authorities for all of our product candidates in clinical development. If we or any of our CROs or vendors fail to comply with applicable laws, regulations and guidelines, the results generated in our clinical trials may be deemed unreliable, and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot be assured that our CROs and other vendors will meet these requirements, or that upon inspection by any regulatory authority, such regulatory authority will determine that efforts, including any of our clinical trials, comply with applicable requirements. Our failure to comply with these laws, regulations and guidelines may require us to repeat clinical trials, which would be costly and delay the regulatory approval process.

If any of our relationships with these third-party CROs terminates, we may not be able to enter into arrangements with alternative CROs in a timely manner or do so on commercially reasonable terms. In addition, our CROs may not prioritize our clinical trials relative to those of other customers, and any turnover in personnel or delays in the allocation of CRO employees by the CRO may negatively affect our clinical trials. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, our clinical trials may be delayed or terminated and we may not be able to meet our current plans with respect to our product candidates. CROs also may involve higher costs than anticipated, which could negatively affect our financial condition and operations.

We completed the construction of our cGMP manufacturing facility during the second quarter of 2018 and we are developing the capability to manufacture product candidates for use in the conduct of our clinical trials. We may not be able to manufacture product candidates or there may be substantial technical or logistical challenges to supporting manufacturing demand for product candidates. We may also fail to comply with cGMP requirements and standards which would not enable us to utilize the manufacturing facility to make clinical trial supply. We plan to rely in part on third-party manufacturers, and their responsibilities will include purchasing from third-party suppliers the materials necessary to produce our product candidates for our clinical trials and regulatory approval. We expect there to be a limited number of suppliers for some of the raw materials that we expect to use to manufacture our product candidates, and we may not be able to identify alternative suppliers to prevent a possible disruption of the manufacture of our product candidates for our clinical trials, and, if approved, ultimately for commercial sale.

Although we generally do not expect to begin a clinical trial unless we believe we have a sufficient supply of a product candidate to complete the trial, any significant delay or discontinuity in the supply of a product candidate, or the raw materials or other material components in the manufacture of the product candidate, could delay completion of our clinical trials and potential timing for regulatory approval of our product candidates, which would harm our business and results of operations. We do not yet have sufficient information to reliably estimate the cost of the commercial manufacturing of our product candidates and our current costs to manufacture our drug products may not be commercially feasible, and the actual cost to manufacture 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.

In addition, our reliance on third-party manufacturers exposes us to the following additional risks:

- we may be unable to identify manufacturers on acceptable terms or at all;
- 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;
- contract manufacturers may not be able to execute our manufacturing procedures appropriately;
- our future third-party 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 the FDA and corresponding state agencies to ensure strict compliance with cGMPs and other government regulations and corresponding foreign standards, and 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 product candidates; and
- 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 FDA or equivalent regulatory agencies outside the U.S., or the commercialization of our product candidates or result in higher costs or deprive us of potential product revenue. In addition, we rely on third parties to perform release testing on our product candidates prior to delivery to patients. If these tests are not appropriately conducted and test data are not reliable, patients could be put at risk of serious harm, which could result in product liability suits.

The manufacture of medical products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of medical products often encounter difficulties in production, particularly in scaling up and validating initial production and absence of contamination. These problems 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 our product candidates or in the manufacturing facilities, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. We cannot be assured that any stability or other issues relating to the manufacture of our product candidates will not occur in the future. Additionally, our manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments. If our manufacturers were to encounter any of these difficulties, or otherwise fail to comply with their contractual obligations, our ability to provide our product candidates to patients in clinical trials would be jeopardized. Any delay or interruption in the supply of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely.

We depend on Takeda for the conduct and funding of the development and commercialization of CD38 SLT-A Fusion Proteins.

In September 2018, we expanded our collaboration with Millennium Pharmaceuticals, Inc., a wholly-owned subsidiary of Takeda Pharmaceutical Company Limited, which we refer to collectively as Takeda, focused on the development collaboration of the parties regarding CD38 SLT-A fusion proteins, including MT-4019, by entering into a Development Collaboration and Exclusive License Agreement by and between the Company and Takeda, or the License Agreement. The primary objective of the strategic alliance is to advance novel therapies for indications associated with oncology, particularly multiple myeloma patients.

Under the License Agreement, we granted Takeda an exclusive license to co-develop one or more licensed products, meaning any product that incorporates or is comprised of one or more of the CD38 SLT-A fusion proteins, up to and including Phase Ia clinical and thereafter we would have an option to continue to co-develop the licensed products.

Pursuant to the terms of the License Agreement, Takeda has the sole discretion to assume or to designate a third party to assume our manufacturing activities under this agreement. Takeda may conduct these activities more slowly or in a different manner than we would. Takeda is also responsible for filing future applications with the FDA or other regulatory authorities for approval of the CD38 SLT-A fusion proteins. We cannot control whether Takeda will devote sufficient attention and resources to the development of the SLT-A fusion proteins or will proceed in an expeditious manner. Even if the FDA or other regulatory agencies approve any of the SLT-A fusion proteins, Takeda may elect not to proceed with the commercialization of the resulting drug in one or more countries.

Under the terms of the License Agreement, we will receive payments and royalties upon reaching certain defined milestones. We may not reach any of the milestones that trigger a payment or royalties under the License Agreement and we are subject to reduced payments and royalty rates if we elect not to exercise our co-development option. We are also subject to royalty reductions if there exists a biosimilar product or generic product being sold by a third party. If we exercise our option to co-develop the licensed products, we will become responsible for sharing co-development costs with Takeda. We cannot predict these costs and it is possible that if we cannot afford these costs in the future, we may have to terminate the License Agreement and could be subject to lower milestone and royalty payments, which could harm our business.

Takeda may elect to terminate the License Agreement for convenience upon 90 days prior written notice. Takeda also maintains the right to terminate the License Agreement in connection with our material breach and our insolvency. Takeda reserves certain rights, such as undertaking any not yet completed early stage program activities to be conducted by us, solely and exclusively, upon any change in control of us. If Takeda terminates the License Agreement, it will result in a delay in or could prevent us from further developing or commercializing the CD38 SLT-A fusion proteins, and will delay and could prevent us from obtaining revenues for this product candidate.

Disputes may arise between us and Takeda, which may delay or cause the termination of any CD38 SLT-A fusion protein clinical trials, result in significant litigation or cause Takeda to act in a manner that is not in our best interest. If development of the CD38 SLT-A fusion proteins does not progress for these or any other reasons, we would not receive further milestone payments or royalties on product sales from Takeda with respect to the CD38 SLT-A fusion proteins and may owe Takeda certain development milestones and royalties as well as amounts owed by Takeda pursuant to any of its third party license agreements.

If Takeda terminates the License Agreement prior to regulatory approval, we may have to seek a new partner for development or commercialization or undertake and fund the development of the CD38 SLT-A fusion proteins or commercialization of the resulting drug ourselves. If we seek a new partner but are unable to do so on acceptable terms, or at all, or do not have sufficient funds to conduct the development or commercialization of the CD38 SLT-A fusion proteins ourselves, we may have to curtail or abandon that development or commercialization, which could harm our business.

We may be unable to realize the potential benefits of any collaboration.

In addition to the License Agreement, we have multi-target research and development collaborations ongoing with Takeda and expect to seek to collaborate with other partners in the future. Even if we are successful in entering into one or more additional collaborations with respect to the development and/or commercialization of one or more product candidates, there is no guarantee that any of these collaborations will be successful. Collaborations may pose a number of risks, including the following:

- collaborators often have significant discretion in determining the efforts and resources that they will apply to the collaboration, and may not commit sufficient resources to the development, marketing or commercialization of the product or products that are subject to the collaboration;
- collaborators may not perform their obligations as expected;
- any such collaboration may significantly limit our share of potential future profits from the associated program, and may require us to relinquish potentially valuable rights to our current product candidates, potential products or proprietary technologies or grant licenses on terms that are not favorable to us;
- collaborators may cease to devote resources to the development or commercialization of our product candidates if the collaborators view our product candidates as competitive with their own products or product candidates;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the course of development, might cause delays or termination of the development or commercialization of product candidates, and might result in legal proceedings, which would be time consuming, distracting and expensive;
- collaborators may be impacted by changes in their strategic focus or available funding, or business combinations involving them, which could cause them to divert resources away from the collaboration;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;
- the collaborations may not result in us achieving revenues sufficient to justify such transactions; and
- collaborations may be terminated and, if terminated, may result in a need for us to raise additional capital to pursue further development or commercialization of the applicable product candidate.

As a result, a collaboration may not result in the successful development or commercialization of our product candidates.

We enter into various contracts in the normal course of our business in which we indemnify the other party to the contract. In the event we have to perform under these indemnification provisions, it could have a material adverse effect on our business, financial condition and results of operations.

In the normal course of business, we have and expect to continue periodically to enter into academic, commercial, service, collaboration, licensing, consulting and other agreements that contain indemnification provisions. With respect to our academic and other research agreements, we typically indemnify the institution and related parties from losses arising from claims relating to our product candidates, processes or services made, used, or performed pursuant to the agreements, and from claims arising from our or our sublicensees' exercise of rights under the agreement. With respect to our collaboration agreements, we indemnify our collaborators from any third-party product liability claims that could result from the production or use of the product candidate, as well as for alleged infringements of any patent or other intellectual property right owned by a third party. With respect to consultants, we often indemnify them from claims arising from the good faith performance of their services.

If our obligations under an indemnification provision exceed applicable insurance coverage or if we were denied insurance coverage, our business, financial condition and results of operations could be adversely affected. Similarly, if we are relying on a collaborator to indemnify us and the collaborator is denied insurance coverage or the indemnification obligation exceeds the applicable insurance coverage, and if the collaborator does not have other assets available to indemnify us, our business, financial condition and results of operations could be adversely affected.

Risks Related to Commercialization of Our Product Candidates

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

Although some of our employees may have marketed, launched and sold other pharmaceutical products in the past while employed at other companies, we have no experience selling and marketing our product candidates, and we currently have no marketing or sales organization. To successfully commercialize any products that may result from our development programs, we will need to find one or more collaborators to commercialize our products or invest in and develop these capabilities, either on our own or with others, which would be expensive, difficult and time consuming. Any failure or delay in the timely development of our internal commercialization capabilities could adversely impact the potential for success of our products.

If commercialization collaborators do not commit sufficient resources to commercialize our future products and we are unable to develop the necessary marketing and sales capabilities on our own, we will be unable to generate sufficient product revenue to sustain or grow our business. We may be competing with companies that currently have extensive and well-funded marketing and sales operations, particularly in the markets our product candidates are intended to address. Without appropriate capabilities, whether directly or through third-party collaborators, we may be unable to compete successfully against these more established companies.

We may attempt to form additional collaborations in the future with respect to our product candidates, but we may not be able to do so, which may cause us to alter our development and commercialization plans.

We may attempt to form strategic collaborations, create joint ventures or enter into licensing arrangements with third parties with respect to our programs in addition to those that we currently have that we believe will complement or augment our existing business. We may face significant competition in seeking appropriate strategic collaborators, and the negotiation process to secure appropriate terms is time consuming and complex. We may not be successful in our efforts to establish such a strategic collaboration for any product candidates and programs on terms that are acceptable to it, or at all. This may be because our product candidates and programs may be deemed to be at too early of a stage of development for collaborative effort, our research and development pipeline may be viewed as insufficient, the competitive or intellectual property landscape may be viewed as too intense or risky, and/or third parties may not view our product candidates and programs as having sufficient potential for commercialization, including the likelihood of an adequate safety and efficacy profile.

Any delays in identifying suitable collaborators and entering into agreements to develop and/or commercialize our product candidates could delay the development or commercialization of our product candidates, which may reduce their competitiveness even if they reach the market. Absent a strategic collaborator, we would need to undertake development and/or commercialization activities at our own expense. If we elect to fund and undertake development and/or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms or at all. If we are unable to do so, we may not be able to develop our product candidates or bring them to market and our business may be materially and adversely affected.

If the market opportunities for our product candidates are smaller than we believe they are, we may not meet our revenue expectations and, assuming approval of a product candidate, our business may suffer. Because the patient populations in the market for our product candidates may be small, we must be able to successfully identify patients and acquire a significant market share to achieve profitability and growth.

Our estimates for the addressable patient population and our estimates for the prices we can charge for our product candidates may differ significantly from the actual market addressable by our product candidates. For instance, our Phase II combination study of MT-3724 with GEMOX is focused on non-Hodgkin's lymphoma. The estimated incidence of non-Hodgkin's B-cell lymphoma is 74,680 new cases and approximately 19,910 deaths were attributable to the disease in the United States in 2018, only a subset of which may benefit from treatment with MT-3724. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including the scientific literature, patient foundations or market research, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these diseases. The number of patients may turn out to be lower than expected. Additionally, while we believe that the data in our Phase II clinical trials for MT-3724 will be supportive of application to other indications, there can be no assurance that our clinical trials will successfully address any additional indications. Likewise, the potentially addressable patient population for each of our product candidates may be limited or may not be amenable to treatment with our product candidates, and new patients may become increasingly difficult to identify or gain access to, which would adversely affect our business, financial condition, results of operations and prospects.

We face substantial competition and our competitors may discover, develop or commercialize products faster or more successfully than us.

The development and commercialization of new drug products is highly competitive. We face competition from major pharmaceutical companies, specialty pharmaceutical companies, biotechnology companies, universities and other research institutions worldwide with respect to MT-3724 and the other product candidates that we may seek to develop or commercialize in the future. We are aware that companies including the following have therapeutics marketed or in development that could compete directly or indirectly with ETBs: Genentech, Bayer, Takeda, AbbVie, Celgene, Seattle Genetics, Immunogen, Morphosys, Genmab, Bristol Myers Squibb, Novartis, Regeneron, Janssen, Xencor, Amgen, Macrogenics, Astra Zeneca, Lilly, Merck KGaA, Pfizer, Merus, Sanofi, Mentrik Biotech, Merrimack Pharmaceuticals, Spectrum Pharmaceuticals, Unum Therapeutics, Daiichi Sankyo, Karyopharm, and F-Star. Our competitors may succeed in developing, acquiring or licensing technologies and drug products that are more effective or less costly than MT-3724 or any other product candidates that we are currently developing or that we may develop, which could render our product candidates obsolete and noncompetitive.

Many of our competitors have materially greater name recognition and financial, manufacturing, marketing, research and drug development resources than we do. Additional mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Large pharmaceutical companies in particular have extensive expertise in preclinical and clinical testing and in obtaining regulatory approvals for drugs, including biologics. In addition, academic institutions, government agencies, and other public and private organizations conducting research may seek patent protection with respect to potentially competitive products or technologies. These organizations may also establish exclusive collaborative or licensing relationships with our competitors.

If our competitors obtain marketing approval from the FDA or comparable foreign regulatory authorities for their product candidates more rapidly than we do, it could result in our competitors establishing a strong market position before we are able to enter the market. Third-party payors, including governmental and private insurers, also may encourage the use of generic products. For example, if MT-3724 is ultimately approved, it may be priced at a significant premium over other competitive products. This may make it difficult for MT-3724 or any other future products to compete with these products. Failure of MT-3724 or other product candidates to effectively compete against established treatment options or in the future with new products currently in development would harm our business, financial condition, results of operations and prospects.

The commercial success of any of our current or future product candidates will depend upon the degree of market acceptance by physicians, patients, third-party payors, and others in the medical community.

Even with the approvals from the FDA and comparable foreign regulatory authorities, the commercial success of our products will depend in part on the health care providers, patients and third-party payors accepting our product candidates as medically useful, cost-effective and safe. Any product that we bring to the market may not gain market acceptance by physicians, patients and third-party payors. The degree of market acceptance of any of our products will depend on a number of factors, including but not limited to:

- the efficacy of the product as demonstrated in clinical trials and potential advantages over competing treatments;
- the prevalence and severity of the disease and any side effects;
- the clinical indications for which approval is granted, including any limitations or warnings contained in a product's approved labeling;
- the convenience and ease of administration;
- the cost of treatment;
- the willingness of the patients and physicians to accept these therapies;
- the perceived ratio of risk and benefit of these therapies by physicians and the willingness of physicians to recommend these therapies to patients based on such risks and benefits;
- the marketing, sales and distribution support for the product;
- the publicity concerning our products or competing products and treatments; and
- the pricing and availability of third-party insurance coverage and reimbursement.

Even if a product displays a favorable efficacy and safety profile upon approval, market acceptance of the product remains uncertain. Efforts to educate the medical community and third-party payors on the benefits of the products may require significant investment and resources and may never be successful. If our products fail to achieve an adequate level of acceptance by physicians, patients, third-party payors and other health care providers, we will not be able to generate sufficient revenue to become or remain profitable.

We may not be successful in any efforts to identify, license, discover, develop or commercialize additional product candidates.

Although a substantial amount of our effort will focus on the continued clinical testing, potential approval and commercialization of our existing product candidates, the success of our business is also expected to depend in part upon our ability to identify, license, discover, develop or commercialize additional product candidates. Research programs to identify new product candidates require substantial technical, financial and human resources. We may focus our efforts and resources on potential programs or product candidates that ultimately prove to be unsuccessful. Our research programs or licensing efforts may fail to yield additional product candidates for clinical development and commercialization for a number of reasons, including but not limited to the following:

- our research or business development methodology or search criteria and process may be unsuccessful in identifying potential product candidates;
- we may not be able or willing to assemble sufficient resources to acquire or discover additional product candidates;
- our product candidates may not succeed in preclinical or clinical testing;
- our potential product candidates may be shown to have harmful side effects or may have other characteristics that may make the products unmarketable or unlikely to receive marketing approval;
- competitors may develop alternatives that render our product candidates obsolete or less attractive;
- product candidates we develop may be covered by third parties' patents or other exclusive rights;
- the market for a product candidate may change during our program so that such a product may become unreasonable to continue to develop;
- a product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all; and
- a product candidate may not be accepted as safe and effective by patients, the medical community or third-party payors.

If any of these events occur, we may be forced to abandon our development efforts for a program or programs, or we may not be able to identify, license, discover, develop or commercialize additional product candidates, which would have a material adverse effect on our business, financial condition or results of operations and could potentially cause us to cease operations.

Failure to obtain or maintain adequate reimbursement or insurance coverage for products, if any, could limit our ability to market those products and decrease our ability to generate revenue.

The pricing, coverage, and reimbursement of our approved products, if any, must be sufficient to support our commercial efforts and other development programs, and the availability and adequacy of coverage and reimbursement by third-party payors, including governmental and private insurers, are essential for most patients to be able to afford expensive treatments. Sales of our approved products, if any, will depend substantially, both domestically and abroad, on the extent to which the costs of our approved products, if any, will be paid for or reimbursed by health maintenance, managed care, pharmacy benefit and similar healthcare management organizations, or government payors and private payors. If coverage and reimbursement are not available, or are available only in limited amounts, we may have to subsidize or provide products for free or we may not be able to successfully commercialize our products.

In addition, there is significant uncertainty related to the insurance coverage and reimbursement for newly approved products. In the United States, the principal decisions about coverage and reimbursement for new drugs are typically made by the CMS, an agency within the U.S. Department of Health and Human Services, as CMS decides whether and to what extent a new drug will be covered and reimbursed under Medicare. Private payors tend to follow the coverage reimbursement policies established by CMS to a substantial degree. It is difficult to predict what CMS will decide with respect to reimbursement for novel product candidates such as ours and what reimbursement codes our product candidates may receive if approved.

Outside the United States, international operations are generally subject to extensive governmental price controls and other price-restrictive regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe, Canada and other countries has and will continue to put pressure on the pricing and usage of products. In many countries, the prices of products are subject to varying price control mechanisms as part of national health systems. Price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our products, if any. Accordingly, in markets outside the United States, the potential revenue may be insufficient to generate commercially reasonable revenue and profits.

Moreover, increasing efforts by governmental and private payors in the United States and abroad to limit or reduce healthcare costs may result in restrictions on coverage and the level of reimbursement for new products and, as a result, they may not cover or provide adequate payment for our products. We expect to experience pricing pressures in connection with products due to the increasing trend toward managed healthcare, including the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, and prescription drugs in particular, has and is expected to continue to increase in the future. As a result, profitability of our products, if any, may be more difficult to achieve even if they receive regulatory approval.

Risks Related to Ownership of Our Common Stock

The market price of our common stock is expected to be volatile, and the market price of the common stock may drop.

The market price of our common stock could be subject to significant fluctuations. Market prices for securities of early-stage pharmaceutical, biotechnology and other life sciences companies have historically been particularly volatile. Some of the factors that may cause the market price of our common stock to fluctuate include:

- our ability to obtain regulatory approvals for MT-3724 or other product candidates, and delays or failures to obtain such approvals;
- failure of any of our product candidates, if approved, to achieve commercial success;
- failure to maintain our existing third-party license and supply agreements;
- failure by us or our licensors to prosecute, maintain, or enforce our intellectual property rights;
- changes in laws or regulations applicable to our product candidates;
- any inability to obtain adequate supply of our product candidates or the inability to do so at acceptable prices;
- adverse regulatory authority decisions;
- introduction of new products, services or technologies by our competitors;
- failure to meet or exceed financial and development projections we may provide to the public;
- failure to meet or exceed the financial and development projections of the investment community;
- the perception of the pharmaceutical industry by the public, legislatures, regulators and the investment community;
- announcements of significant acquisitions, strategic collaborations, joint ventures or capital commitments by us or our competitors;
- disputes or other developments relating to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
- additions or departures of key personnel;
- significant lawsuits, including patent or stockholder litigation;
- failure by securities or industry analysts to publish research or reports about our business, or issuance of any adverse or misleading opinions by such analysts regarding our business and stock;
- changes in the market valuations of similar companies;
- general market or macroeconomic conditions;
- sales of our common stock by us or our stockholders in the future;
- the trading volume of our common stock;
- announcements by commercial partners or competitors of new commercial products, clinical progress or the lack thereof, significant contracts, commercial relationships or capital commitments;
- adverse publicity relating to ETB therapeutics generally, including with respect to other products and potential products in such markets;
- the introduction of technological innovations or new therapies that compete with our potential products;
- changes in the structure of health care payment systems; and
- period-to-period fluctuations in our financial results.

Moreover, the stock markets in general have experienced substantial volatility that has often been unrelated to the operating performance of individual companies. These broad market fluctuations may also adversely affect the trading price of our common stock.

In the past, following periods of volatility in the market price of a company's securities, stockholders have often instituted class action securities litigation against those companies. Such litigation, if instituted, could result in substantial costs and diversion of management attention and resources, which could significantly harm our profitability and reputation.

Additionally, a decrease in our stock price may cause our common stock to no longer satisfy the continued listing standards of The Nasdaq Capital Market. If we are not able to maintain the requirements for listing on The Nasdaq Capital Market, we could be delisted, which could have a materially adverse effect on our ability to raise additional funds as well as the price and liquidity of our common stock. As of November 6, 2018, we had outstanding a total of approximately 36,496,116 shares of common stock.

Future sales of shares by existing stockholders could cause our stock price to decline.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market, the trading price of our common stock could decline. The perception in the market that these sales may occur could also cause the trading price of our common stock to decline. As of November 6, 2018, we had outstanding a total of approximately 36,496,116 at shares of common stock. As a result of contractual arrangements entered into in connection with our September public offering, approximately 16.5 million shares of our common stock beneficially owned by our executive officers, directors and certain of our existing shareholders are subject to lock-up agreements until December 19, 2018 that prohibit, subject to certain exceptions, the offering, sale, contracting to sell, pledging or otherwise disposing of, directly or indirectly, any of our common stock or securities convertible into or exchangeable or exercisable for any of our common stock, entering into a transaction that would have the same effect, or entering into any swap, hedge or other arrangement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock, whether any of these transactions are to be settled by delivery of our common stock or other securities, in cash or otherwise, or publicly disclosing the intention to make any offer, sale, pledge or disposition, or to enter into any transaction, swap, hedge or other arrangement, without, in each case, the prior written consent of the representatives of the underwriters of the public offering, who may release any of the securities subject to these lock-up agreements at any time without notice. To the extent shares are released before the expiration of the lock-up period and sold into the market, the market price of our common stock could decline significantly.

Our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law contain provisions that could discourage another company from acquiring us and may prevent attempts by our stockholders to replace or remove our current management.

Provisions of Delaware law, where we are incorporated, our amended and restated certificate of incorporation and our amended and restated bylaws may discourage, delay or prevent a merger or acquisition that our stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace or remove our board of directors. These provisions include:

- authorizing our board of directors to issue "blank check" preferred stock without any need for approval by stockholders;
- providing for a classified board of directors with staggered three-year terms;
- requiring supermajority stockholder votes to effect certain amendments to our amended and restated certificate of incorporation and amended and restated bylaws;
- eliminating the ability of stockholders to call special meetings of stockholders;
- prohibiting stockholder action by written consent; and
- establishing advance notice requirements for nominations for election to our board of directors or for proposing matters that can be acted on by stockholders at stockholder meetings.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the Delaware General Corporation Law, or the DGCL, our amended and restated bylaws and our indemnification agreements that we have entered into with our directors and executive officers provide that:

- We will indemnify our directors and executive officers for serving us in those capacities or for serving other related business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful.
- We may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law.
- We are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification.
- The rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons.
- We may not retroactively amend our amended and restated bylaw provisions to reduce our indemnification obligations to directors, officers, employees and agents.

We have never paid dividends on our common stock, and we do not anticipate paying any cash dividends in the foreseeable future.

We have never declared or paid cash dividends on our common stock. We do not anticipate paying any cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to fund the development and growth of our business. As a result, capital appreciation, if any, of our common stock will be our stockholders' sole source of gain for the foreseeable future.

We incur costs and demands upon management as a result of complying with the laws and regulations affecting public companies.

We incur significant legal, accounting and other expenses associated with public company reporting requirements. We also incur costs associated with corporate governance requirements, including requirements under the Sarbanes-Oxley Act of 2002, or Sarbanes-Oxley Act, as well as new implemented by the Securities and Exchange Commission, or the SEC, and The Nasdaq Stock Market. These rules and regulations are expected to increase our legal and financial compliance costs and to make some activities more time consuming and costly. For example, our management team includes certain individuals who were executive officers of Private Molecular prior to the Merger, some of whom have not previously managed and operated a public company. These executive officers and other personnel will need to devote substantial time to gaining expertise regarding operations as a public company and compliance with applicable laws and regulations. These rules and regulations also may make it difficult and expensive for us to obtain and maintain directors' and officers' liability insurance. As a result, it may be more difficult for us to attract and retain qualified individuals to serve on our board of directors or as executive officers, which may adversely affect investor confidence in us and could cause our business or stock price to suffer.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the sole and exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, any action asserting a claim against us arising pursuant to any provisions of the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. If a court were to find the choice of forum provision contained in our amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

An active trading market for our common stock may not develop.

Prior to the Merger, there had been no public market for Private Molecular common stock. An active trading market for our shares of common stock may not be sustained. If an active market for our common stock is not sustained, it could put downward pressure on the market price of our common stock and thereby affect the ability of stockholders to sell their shares.

Our executive officers, directors and principal stockholders have the ability to control or significantly influence all matters submitted to our stockholders for approval.

As of September 30, 2018, our directors, officers, and stockholders beneficially owning 5% or more of our shares or that may be affiliated with our board members, beneficially owned, in the aggregate, approximately 66% of our outstanding shares of common stock. As a result, if these stockholders were to choose to act together, they would be able to significantly influence almost all matters submitted to our stockholders for approval, as well as our management and affairs. For example, these persons, if they choose to act together, would control or significantly influence the election of directors and approval of any merger, consolidation or sale of all or substantially all of our assets. Within this group, Santé Health Ventures I, L.P. and its affiliates own approximately 24% of our shares, Longitude Venture Partners III, L.P. and its affiliates own approximately 12% of our shares, Millennium Pharmaceuticals, Inc. owns approximately 8% of our shares and BVF Partners, L.P. owns approximately 7.6% of our shares. This concentration of voting power could delay or prevent an acquisition of us on terms that other stockholders may desire.

If equity research analysts do not publish research or reports, or publish unfavorable research or reports, about us, our business or our market, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that equity research analysts publish about us and our business. Equity research analysts may elect not to provide research coverage of our common stock, and such lack of research coverage may adversely affect the market price of our common stock. In the event we do have equity research analyst coverage, we will not have any control over the analysts or the content and opinions included in their reports. The price of our common stock could decline if one or more equity research analysts downgrade our stock or issue other unfavorable commentary or research. If one or more equity research analysts ceases coverage of us or fails to publish reports on us regularly, demand for our common stock could decrease, which in turn could cause our stock price or trading volume to decline.

We have broad discretion in the use of our cash reserves and may not use them effectively.

We have broad discretion over the use of our cash reserves, including the proceeds from our previous financings. You may not agree with our decisions, and our use of these funds may not improve our results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could compromise our ability to pursue our growth strategy, result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest our cash reserves in a manner that does not produce income or that loses value.

Having availed ourselves of scaled disclosure available to smaller reporting companies, we cannot be certain if such reduced disclosure will make our common stock less attractive to investors.

As currently defined under Section 12b-2 of the Exchange Act of 1934, as amended, or the Exchange Act, a “smaller reporting company” is a company that is not an investment company, an asset backed issuer, or a majority-owned subsidiary of a parent company that is not a smaller reporting company, and has a public float of less than $75 million and annual revenues of less than $50 million during the most recently completed fiscal year. Smaller reporting companies are permitted to provide simplified executive compensation disclosure in their filings; they are exempt from the provisions of Section 404(b) of the Sarbanes-Oxley Act requiring that independent registered public accounting firms provide an attestation report on the effectiveness of internal controls over financial reporting; and they have certain other decreased disclosure obligations in their SEC filings, including, among other things, only being required to provide two years of audited financial statements in annual reports. Being a smaller reporting company, we are permitted to avail ourselves of the scaled disclosure requirements available to smaller reporting companies in this Quarterly Report on Form 10-Q. Decreased disclosure in our SEC filings as a result of our having availed ourselves of scaled disclosure may make it harder for investors to analyze our results of operations and financial prospects.

Risks Related to Our Business Operations

Our future success depends in part on our ability to retain our Chief Executive Officer and Chief Scientific Officer and to attract, retain, and motivate other qualified personnel.

We are highly dependent on Eric E. Poma, Ph.D., our Chief Executive Officer and Chief Scientific Officer, the loss of whose services may adversely impact the achievement of our objectives. Dr. Poma could leave our employment at any time, as he is an "at will" employee. Recruiting and retaining other qualified employees, consultants and advisors for our business, including scientific and technical personnel, will also be crucial to our success. There is currently a shortage of highly qualified personnel in our industry, which is likely to continue. Additionally, this shortage of highly qualified personnel is particularly acute in the area where we are located. As a result, competition for personnel is intense and the turnover rate can be high. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for individuals with similar skill sets. In addition, failure to succeed in development and commercialization of our product candidates may make it more challenging to recruit and retain qualified personnel. The inability to recruit and retain qualified personnel, or the loss of the services of Dr. Poma may impede the progress of our research, development and commercialization objectives and would negatively impact our ability to succeed in our product development strategy.

We will need to expand our organization, and we may experience difficulties in managing this growth, which could disrupt our operations.

As of September 30, 2018, we had 63 full-time employees. As our development and commercialization plans and strategies develop, we expect to need additional managerial, operational, sales, marketing, financial, legal and other resources. Our management may need to divert a disproportionate amount of its attention away from its day-to-day activities and devote a substantial amount of time to managing these growth activities. We may not be able to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of additional product candidates. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and/or grow revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize product candidates and compete effectively will depend, in part, on our ability to effectively manage any future growth.

Failure in our information technology and storage systems, including a cybersecurity breach, could significantly disrupt the operation of our business.

Our ability to execute our business plan and maintain operations depends on the continued and uninterrupted performance of our information technology, or IT, systems. We maintain sensitive company data on our computer networks, including our intellectual property and proprietary business information. Our IT systems are vulnerable to risks and damages from a variety of sources, including telecommunications or network failures, cyber-attacks, computer viruses, breaches, unauthorized access, interruptions due to employee error or malfeasance or other disruptions, or damage from natural disasters, terrorism, war and telecommunication and electrical failures. Moreover, despite network security and back-up measures, some of our and our vendors' servers are potentially vulnerable to physical or electronic break-ins, including cyber-attacks, computer viruses and similar disruptive problems. These events could lead to the unauthorized access, disclosure and use of non-public information including our intellectual property or proprietary business information. The techniques used by criminal elements to attack computer systems are sophisticated, change frequently and may originate from less regulated and remote areas of the world. As a result, we may not be able to address these techniques proactively or implement adequate preventative measures. There can be no assurance that we will promptly detect any such disruption or security breach, if at all. If our computer systems are compromised, we could be subject to fines, damages, reputational harm, litigation and enforcement actions, and we could lose trade secrets, the occurrence of which could harm our business, in addition to possibly requiring substantial expenditures of resources to remedy. For example, the loss of data from completed clinical trials for our product candidates could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce data and a cybersecurity breach could adversely affect our reputation and could result in other negative consequences, including disruption of our internal operations, increased cyber security protection costs, lost revenues or litigation. Despite precautionary measures to prevent unanticipated problems that could affect our IT systems, sustained or repeated system failures that interrupt our ability to generate and maintain data could adversely affect our ability to operate our business.

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

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

EXHIBIT INDEX

The exhibits listed on the accompanying index to exhibits are filed or incorporated by reference (as stated therein) as part of this Quarterly Report on Form 10-Q.

Exhibit Number	Description
10.1	Underwriting Agreement, dated September 20, 2018, among Molecular Templates, Inc. and Cowen and Company, LLC and Evercore Group L.L.C., as representatives of the several underwriters named therein (incorporated by reference to Exhibit 1.1 of Form 8-K (File No. 001-32979) filed with the SEC on September 24, 2018).
10.2 †	Development Collaboration and Exclusive License Agreement by and between Molecular Templates, Inc. and Millennium Pharmaceuticals, Inc., dated September 18, 2018.
10.3 †	Cancer Research Grant Contract, dated September 18, 2018, by and between Molecular Templates, Inc. and the Cancer Prevention and Research Institute of Texas.
31.1	Certification of Principal Executive Officer required by Rule 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934 as amended.
31.2	Certification of Principal Financial Officer required by Rule 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934 as amended.
32.1*	Certification required by Rule 13a-14(b) or Rule 15d-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350).
32.2*	Certification required by Rule 13a-14(b) or Rule 15d-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350).
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 Labels Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

* Furnished herewith. This certification is not deemed filed for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section, and is not deemed to be incorporated by reference into any filing under the Securities the Exchange Act.

† Portions of this Exhibit have been omitted and filed separately with the Securities and Exchange Commission pursuant to a confidential treatment request under Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

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.

Molecular Templates, Inc.

Date: November 13, 2018

/s/ Eric E. Poma

Eric E. Poma, Ph.D.
Chief Executive Officer and Chief Scientific Officer
(Principal Executive Officer)

Date: November 13, 2018

/s/ Adam Cutler

Adam Cutler
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 10.2

DEVELOPMENT COLLABORATION AND EXCLUSIVE LICENSE AGREEMENT

between

MOLECULAR TEMPLATES, INC.

and

MILLENNIUM PHARMACEUTICALS, INC.

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

TABLE OF CONTENTS

Schedules

Exhibits

DEVELOPMENT COLLABORATION AND EXCLUSIVE LICENSE AGREEMENT

This Development Collaboration and Exclusive License Agreement (this "**Agreement**") is entered into as of September 18 , 2018 (the "**Effective Date**") by and between **MOLECULAR TEMPLATES, INC.**, a Delaware corporation, having its principal place of business at 9301 Amberglen Boulevard, Suite 100, Austin, TX 78729 ("**MTEM**") and **MILLENNIUM PHARMACEUTICALS, INC.** , a Delaware corporation, a wholly-owned subsidiary of Takeda Pharmaceutical Company Limited, having its principal place of business at 40 Landsdowne Street, Cambridge, MA 02139 ("**Takeda**"). MTEM and Takeda may sometimes individually be referred to hereafter as a "**Party**" or collectively as the "**Parties**."

RECITALS

WHEREAS, MTEM owns or controls certain intellectual property rights relating to technology useful for generating SLT-A Fusion Proteins (as defined below) capable of directing SLT-As to specific tissues or cells;

WHEREAS, (a) pursuant to the Research Collaboration and Option Agreement ("**2016 Research Collaboration Agreement**") between the Parties dated October 31, 2016, MTEM and Takeda generated three SLT-A Fusion Proteins Directed to the Target containing a Takeda Targeting Moiety: [***] and (b) MTEM generated prior to the 2016 Research Collaboration Agreement one SLT-A Fusion Protein containing a 4019 Targeting Moiety Directed to the Target: MT-4019 (each such SLT-A Fusion Protein, a non-limiting example of a CD38 SLT-A Fusion Protein (as defined below)); and whereas currently the [***] CD38 SLT-A Fusion Protein (containing a Takeda Targeting Moiety) is the lead and the other three CD38 SLT-A Fusion Proteins referenced above are the back-ups;

WHEREAS , Takeda has exercised its option under the 2016 Research Collaboration Agreement to negotiate a license to the CD38 SLT-A Fusion Proteins generated under that agreement, and further seeks a license to MTEM's CD38 SLT-A Fusion Protein, MT-4019, and the Parties have negotiated the terms set forth herein;

WHEREAS, the Parties have in parallel been conducting related work under that certain Individual Project Agreement between the Parties dated as of June 18, 2018 as amended and restated on July 27, 2018 (the "**IPA**");

WHEREAS, the Parties are also parties to that certain Multi-Target Collaboration and License Agreement dated June 23, 2017 (the "**Multi-Target Agreement**"), which covers certain SLT-A Fusion Proteins Directed to other targets (as specified therein);

WHEREAS, the Parties desire to Co-Develop one or more Licensed Product(s) (as set forth herein) up to and including Phase Ia Clinical Trial and thereafter MTEM would have an option to continue to Co-Develop the Licensed Product(s) as described further herein; and

WHEREAS, the Parties grant the licenses set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants and obligations set forth herein, the Parties hereto, intending to be legally bound, agree as follows:

ARTICLE I
DEFINITIONS AND INTERPRETATION

Section 1.1 **Definitions**. For the purposes of this Agreement the following words and phrases shall have the following meanings:

1.1.1 "**2016 Research Collaboration Agreement**" has the meaning set forth in the Recitals.

1.1.2 "**4019 Targeting Moiety**" means that certain public domain antibody fragment included in MT-4019 [***], including Improvements, modifications, fragments and derivatives thereof and corresponding compositions of matter, methods of making or using any of the foregoing.

1.1.3 "**4019 Targeting Moiety Know-How**" means any Program Know-How that is related to any 4019 Targeting Moiety, including Improvements, modifications, fragments and derivatives thereof and corresponding compositions of matter, methods of making or using any of the foregoing, but excluding any Product Program Know-How, MTEM Program Know-How and Takeda Program Know-How.

1.1.4 "**Acceptance**" means (a) with respect to a BLA or NDA, the acceptance by FDA of such BLA or NDA for substantive review, which can be evidenced by Takeda's receipt of notice from FDA of such acceptance or other evidence that FDA has commenced its substantive review, (b) with respect to a Drug Approval Application filed with the EMA, the receipt by Takeda of a letter from the EMA with respect to such Drug Approval Application indicating that there has been a positive outcome of the EMA's validation of such Drug Approval Application and (c) with respect to a Drug Approval Application filed with the PMDA in Japan, the acceptance by PMDA of such Drug Approval Application for substantive review, which can be evidenced by Takeda's receipt of notice from PMDA of such acceptance or other evidence that PMDA has commenced its substantive review.

1.1.5 "**Accounting Standards**" means International Financial Reporting Standards, with respect to Takeda, and Generally Accepted Accounting Standards in the U.S. with respect to MTEM, in each case, consistently applied.

1.1.6 "**Affiliate**" of a Party means any corporation or other business entity that, directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such Party for so long as such Party controls, is controlled by or is under common control with such corporation or other business entity. As used herein, the term "control" means the direct or indirect ownership of fifty percent (50%) or more of the stock having the right to vote for directors thereof or the ability to otherwise control the management thereof. In the case of Takeda, a corporation or other business entity shall not be an Affiliate of Takeda as a result of an investment in such corporation or other business entity by the venture investment arm of Takeda and its Affiliates.

1.1.7 "**Agreement**" has the meaning set forth in the preamble hereto.

1.1.8 "**Alliance Manager**" has the meaning set forth in Section 4.1.1.

1.1.9 "**Antibody**" means an unconjugated polyclonal or monoclonal antibody (whether (a) fully human, fully mouse, humanized, fully synthetic, bivalent, monovalent, phage display, in vitro display, ribosome-display, RNA display, DNA display, cell-display, chimeric, polyclonal, polyclonal mixes or any other type of antibody, (b) multiple or single chain, recombinant, in vivo, in vitro or naturally occurring, or a combination of the foregoing in any species, or (c) monospecific or bi-specific) or any analog, derivative, fragment or modification thereof (including a full antibody, single chain antibody, single domain antibody (sdAb (e.g., VHH))), scFv, scFvFc, Fab, or minibody.

1.1.10 "**Applicable Law**" means any law or statute, any rule or regulation (including written governmental interpretations thereof, the guidance related thereto, or the application thereof) issued by a Governmental Authority or Regulatory Authority and any judicial, governmental, or administrative order, judgment, decree, or ruling, in each case as applicable to the subject matter and the parties at issue.

1.1.11 "**Background IP**" means, with respect to a Party, any Know-How, inventions, Patent Rights and other intellectual property rights that are owned or otherwise Controlled (other than pursuant to the license grants set forth in Article III) by such Party or any of its Affiliates (solely or jointly) prior to the Effective Date or thereafter but through activities outside of this Agreement, including under the 2016 Research Collaboration Agreement or the Multi-Target Agreement.

1.1.12 "**Bankruptcy Code**" has the meaning set forth in Section 11.4.

1.1.13 "**Biosimilar Product** " means, with respect to a Licensed Product in a country or jurisdiction, any product sold by a Third Party that (a) is subject to a license under Section 351(a) or 351(k) of the PHSA and (i) is authorized by the FDA as being "interchangeable" (as defined in Section 351(i)(3) of the PHSA) to such Licensed Product, or (ii) is authorized by the FDA as being a "biosimilar" (as defined in Section 351(i)(2) of the PHSA) regardless of whether such product has been found to be "interchangeable" (as defined in Section 351(i)(3) of the PHSA) to such Licensed Product, (b) has been granted a marketing authorization by the European Commission as a similar biological medicinal product pursuant to Article 10 of Directive 2001/83/EC, as may be amended, or any subsequent or superseding law, stature or regulation or (c) has otherwise received Regulatory Approval as a generic, biosimilar or interchangeable product from another applicable Regulatory Authority in such country or jurisdiction, including by referencing or otherwise relying on Regulatory Approvals (or data therein) of such Licensed Product.

1.1.14 "**BLA** " means Biologics License Application as described in 21 C.F.R § 601.2, or equivalent FDA application.

1.1.15 "**Breaching Party**" has the meaning set forth in Section 11.3.1.

1.1.16 "**Budget Threshold**" means for budget updates in a given year, the higher of (a) [***] in the case of the Early Stage Program or [***] in the case of the Post Phase Ia Program and (b) an aggregate [***] budgetary increase from the then current budget set forth in the plan for such Program.

1.1.17 "**Business Day**" means a day on which national banks located in the Commonwealth of Massachusetts are open for commercial banking business other than a Saturday or Sunday.

1.1.18 "**Calendar Quarter**" means any of the three (3)-month periods beginning on January 1, April 1, July 1 or October 1 of any Calendar Year, except that the first Calendar Quarter of the Term shall commence on the Effective Date and end on June 30, 2017 and the last Calendar Quarter shall end on the last day of the Term.

1.1.19 "**Calendar Year**" means (a) for the first Calendar Year, the period commencing on the Effective Date and ending on December 31 of the year during which the Effective Date occurs, (b) for the last Calendar Year, the period commencing on January 1 of the last year of the Term, and ending on the last day of the Term, and (c) each interim period of twelve (12) months commencing on January 1 and ending on December 31.

1.1.20 [***]

1.1.21 "**CD38 SLT-A Fusion Protein**" means any SLT-A Fusion Protein (a) used or developed under the 2016 Collaboration Agreement, the IPA or the Programs by MTEM, including those specified in the Recitals or (b) are covered or claimed by the MTEM Background Know-How or MTEM Background Patent Rights, including any SLT-A Technology, or any MTEM SLT-A Program Patent Rights and MTEM SLT-A Program Know-How, in either case that is Directed to the Target.

1.1.22 "**Change in Control**" means with respect to a Party, (a) a merger or consolidation in which (i) such Party is a constituent party, or (ii) a subsidiary of such Party is a constituent party, and such entity in clause (i) or (ii) issues shares of its capital stock pursuant to such merger or consolidation, except in the case of either clause (i) or (ii) any such merger or consolidation involving such Party or a subsidiary of such Party in which the shares of capital stock of such entity outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or are exchanged for shares of capital stock which represent, immediately following such merger or consolidation 50% or more by voting power of the capital stock of (A) the surviving or resulting corporation or (B) the parent corporation of such surviving or resulting corporation, in the case that the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation; (b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by such Party or a subsidiary of such Party of all or substantially all of the assets of such Party or such subsidiary of such Party taken as a whole (except where such sale, lease, transfer, exclusive license or other disposition is only to a wholly owned subsidiary of such Party or a subsidiary of such Party); or (c) any "person" or "group," as such terms are defined in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended, and the rules thereunder (collectively, the "**Exchange Act**") in a single transaction or series of related transactions, becomes the beneficial owner as defined under the Exchange Act, directly or indirectly, whether by purchase or acquisition or agreement to act in concert or otherwise, of 50% or more by voting power of the then-outstanding capital stock or other equity interests of such Party or a subsidiary of such Party, other than pursuant to a bona fide financing.

1.1.23 "**Claim**" has the meaning set forth in Section 10.1.1.

1.1.24 "**Clinical Trial**" means any clinical study conducted on human subjects. Without limiting the foregoing, Clinical Trials includes any Phase I Clinical Trial, Phase II Clinical Trial or Phase III Clinical Trial.

1.1.25 "**Co-Development**" or "**Co-Develop**" means the circumstance in which MTEM has the obligation to share Co-Development Costs under this Agreement.

1.1.26 "**Co-Development Costs**" means (a) the Development Costs for the Early Stage Program as further described in Section 2.1.1, and (b) in the case in which the Co-Development Option is exercised, Development Costs for the Post Phase Ia Program Plan as further described in Section 2.1.2(b).

1.1.27 "**Co-Development Option**" means that certain option described in Section 2.1.2(b).

1.1.28 "**Co-Development Period**" means any period during which the Parties share Co-Development Costs under this Agreement, including (a) the Early Stage Program only or (b) if MTEM exercises the Co-Development Option, the Early Stage Program and the Post Phase Ia Program and, if applicable, ending at the end of the Co-Development Termination Notice Period (or as of the effective date of the termination of the Co-Development Period by Takeda as permitted under this Agreement).

1.1.29 "**Co-Development Royalty Term**" means, on a Licensed Product-by-Licensed Product and country-by-country basis, and subject to Section 6.5.3 and Section 6.5.6, the period commencing upon the First Commercial Sale of a Licensed Product in such country and ending upon the latest to occur of: (a) the date of expiration of the last Valid Patent Claim of the MTEM Background Patent Rights, the Patent Rights in the Joint Background IP, the MTEM Program Patent Rights, the Takeda Program Patent Rights (including any Takeda Targeting Moiety IP), and any Product Program Patent Rights claiming inventions that were conceived or reduced to practice during the Co-Development Period which Valid Patent Claim covers the Licensed Product or its method of use for an approved indication, in each case that would be infringed by the sale of the applicable Licensed Product in the applicable country, if not for Takeda's ownership thereof or the licenses granted hereunder; (b) the date of expiration of any regulatory exclusivity for such Licensed Product in such country; and (c) the date of [***].

1.1.30 "**Co-Development Termination Notice**" has the meaning set forth in Section 6.5.2.

1.1.31 "**Co-Development Termination Notice Period**" has the meaning set forth in Section 6.5.2.

1.1.32 "**Combination Product**" means a Licensed Product that contains a CD38 SLT-A Fusion Protein as an active ingredient together with one (1) or more other active ingredients and is sold together for a single invoiced price, including in the case of co-packaging or co-formulation.

1.1.33 "**Commercialize**" or "**Commercializing**" means to market, promote, distribute, offer for sale, sell, have sold, import, have imported, export, have exported or otherwise commercialize a compound or product. When used as a noun, "Commercialization" means any and all activities involved in Commercializing.

1.1.34 "**Commercially Reasonable Efforts**" means, with respect to the efforts to be expended, by a Party or its Affiliate with respect to any objective to be undertaken hereunder, reasonable, good faith efforts to accomplish such objective as such Party would normally use to accomplish a similar objective under similar circumstances, it being understood and agreed that with respect to applicable activities, such efforts and resources shall be consistent with those efforts and resources commonly used by such Party under similar circumstances for similar products owned by it or to which it has similar rights that are at a similar stage in their development or product life and are of similar market potential as the applicable Licensed Product taking into account: (a) issues of efficacy, safety and expected and actual approved labeling, (b) the expected and actual competitiveness of alternative products sold by Third Parties in the marketplace, (c) the expected and actual product profile, (d) the expected and actual patent and other proprietary position, (e) the likelihood of regulatory approval given the regulatory structure involved, including regulatory or data exclusivity, and (f) the expected and actual profitability and return on investment of the applicable Licensed Product, or other products in a Party's portfolio of products, taking into consideration, among other factors, the expected or actual (i) Third Party costs and expenses, (ii) royalty, milestone and other payments payable to Third Parties and to MTEM, and (iii) pricing and reimbursement. Commercially Reasonable Efforts shall be determined on a country-by-country and indication-by-indication basis for each Licensed Product, as applicable, and it is anticipated that the level of effort and resources that constitute "Commercially Reasonable Efforts" with respect to a particular country or indication will change over time, reflecting changes in the status of the applicable Licensed Product and the country(ies) involved. Notwithstanding the foregoing, neither Party shall be obligated to Develop, seek Regulatory Approval for, or Commercialize a Licensed Product: (A) that, in its reasonable opinion after discussion with the other Party, caused or is likely to cause a fatal, life-threatening or other adverse safety event that is reasonably expected, based upon then available data, to preclude obtaining Regulatory Approval for such Licensed Product, or, if Regulatory Approval of such Licensed Product has already been obtained, to preclude continued marketing of such Licensed Product; or (B) in a manner inconsistent with Applicable Law.

1.1.35 "**Component**" means any intermediate, component or unfinished form, element or ingredient of a CD38 SLT-A Fusion Protein or of a Licensed Product.

1.1.36 "**Confidential Information**" has the meaning set forth in Section 7.1.

1.1.37 "**Contract Manufacturing Organization**" or "**CMO**" has the meaning set forth in Section 5.1.2.

1.1.38 "**Control**" means, with respect to any information, Regulatory Documentation or intellectual property right, possession, whether directly or indirectly, by a Party or its Affiliates (including, except as described below, a Future Acquirer) of the ability (whether by sole, joint or other ownership interest, license or otherwise, other than pursuant to the grants set forth in this Agreement) to grant the right to access or use, or to grant a license or a sublicense to, such information, Regulatory Documentation or intellectual property right as provided for herein without violating the terms of any agreement or other arrangement with any Third Party. Notwithstanding the foregoing, any information or intellectual property right Controlled by a Future Acquirer of MTEM shall not be treated as "Controlled" by MTEM or its Affiliates for purposes of this Agreement to the extent, but only to the extent, that such intellectual property (a) is Controlled by such Future Acquirer of MTEM immediately prior to the time such Future Acquirer qualifies as such, other than pursuant to a license or other grant of

rights (whether directly or indirectly) by MTEM or its Affiliates, or (b) is Controlled by such Future Acquirer subsequent to the time that such Future Acquirer qualifies as such but (i) was not Controlled by MTEM or any of its existing Affiliates prior to the time such Future Acquirer qualifies as such and (ii) did not come under the Control of such Future Acquirer due to any license or other grant of rights by MTEM or its Affiliates or any reference or access to any Program IP or MTEM Background IP, Takeda Background IP, Product Information or any other Confidential Information of Takeda or information, Regulatory Documentation or intellectual property right Controlled by MTEM or any of its Affiliates (other than information, Regulatory Documentation or intellectual property Controlled by a Future Acquirer that would be excluded by clause (a) or (b)(i) of this definition).

1.1.39 "**CPRIT**" has the meaning set forth in Section 9.2.14.

1.1.40 "**CPRIT Agreements**" means any agreements existing as of the Effective Date, entered into by MTEM and CPRIT relating to SLT-A Technology used in relation to CD38 SLT-A Fusion Proteins, CD38 SLT-A Fusion Proteins or the 4019 Targeting Moiety.

1.1.41 "**Develop**" or "**Developing**" means to discover, research, manufacture, evaluate, compare, or develop a process, compound or product, including conducting non-clinical, clinical research, development and regulatory activities, including any activities necessary or useful to obtain or maintain Regulatory Approval with respect to any product. When used as a noun, "Development" means any and all activities involved in Developing.

1.1.42 "**Development Costs**" means [***] incurred by a Party, its Affiliates, licensees or Sublicensees in connection with performing its applicable Program Activities that are either (a) budgeted in the applicable Program Plan or otherwise specified as Development Costs herein or (b) approved by the Joint Steering Committee as Development Costs for the Early Stage Program or if the Co-Development Option is exercised, the Post Phase Ia Program, as applicable. Examples of Program Activities that may be part of the applicable budget include: clinical manufacturing, regulatory filings and preparation thereof, manufacturing process development, research and development for translational activities, global development activities, and early access programs.

1.1.43 "**Development Material**" means materials supplied by MTEM hereunder for use in the Early Stage Program or other clinical or nonclinical development.

1.1.44 "**Directed** " means, with respect to the Target, that an Antibody, SLT-A Fusion Protein or other targeting moiety is selected, generated or optimized to preferentially bind to the Target.

1.1.45 "**Dispute**" has the meaning set forth in Section 12.3.

1.1.46 "**Distributor**" means any Person(s) appointed by Takeda or any of its Affiliates or its or their Sublicensees to distribute, market or sell product(s), with or without packaging rights, in one or more countries or jurisdictions, in circumstances where such Person purchases its requirements of the Licensed Product(s) from Takeda or its Affiliates or its or their Sublicensees but does not otherwise make any royalty or other payment to any of Takeda or its Affiliates or its or their Sublicensees with respect to its intellectual property rights with respect to the Licensed Product(s).

1.1.47 "**Drug Approval Application**" means a BLA, an NDA or any corresponding foreign application in the Territory, including, with respect to a country in Europe, a marketing authorization application filed with the EMA pursuant to the centralized approval procedure and, with respect to Japan, a marketing authorization application filed with the PMDA.

1.1.48 "**Early Stage Development Budget**" has the meaning set forth in Section 2.1.1.

1.1.49 "**Early Stage Program**" means IND-enabling studies and the clinical program conducted pursuant to the Early Stage Program Plan and activities related thereto and including activities which may be related to investments in future Post Phase Ia Program Activities, such as process development for manufacturing scale up.

1.1.50 "**Early Stage Program Activities**" means Development activities carried out pursuant to the Early Stage Program Plan.

1.1.51 "**Early Stage Program Plan**" means that certain plan set forth in Schedule 1.1.51 with respect to the IND-enabling studies and the Phase Ia Clinical Trial(s) which shall be completed upon determination of the first maximally tolerated dose if multiple maximally tolerated doses are being pursued. The Early Stage Program Plan may be updated from time to time subject to Section 2.1.1. and may include such preparatory work for the period following the Phase Ia Clinical Trial(s), such as scale up optimization and process development.

1.1.52 "**Effective Date**" has the meaning set forth in the preamble hereto.

1.1.53 "**EMA**" means the European Medicines Agency, or any successor agency thereto.

1.1.54 "**European Union**" means the economic, scientific and political organization of member states as it may be constituted from time to time, specifically including any territory that was a member state as of the Effective Date whether or not such territory is a participating member state as of the applicable time.

1.1.55 "**Event of Force Majeure**" has the meaning set forth in Section 12.6.

1.1.56 "**Exchange Act**" has the meaning set forth in the definition of Change in Control.

1.1.57 "**Excluded Lists**" means the United States Department of Health and Human Service's List of Excluded Individuals/Entities and the United States General Services Administration's Lists of Parties Excluded from Federal Procurement and Non-Procurement Programs, and any analogous lists pursuant to Applicable Law outside the United States.

1.1.58 "**Exclusive License**" has the meaning set forth in Section 3.3 .

1.1.59 "**Existing Third Party Agreement**" means any agreement or arrangement between Takeda [***] or any other Third Party in effect as of the Effective Date (including, without limitation, the future exercise of any option or license relating to such agreement or arrangement).

1.1.60 "**Expert Panel**" has the meaning set forth in Section 12.3.

1.1.61 "**Exploit**" means make, have made, import, use, sell or offer for sale, including to research, Develop, Commercialize, register, Manufacture, have Manufactured, hold or keep (whether for disposal or otherwise), have used, export, transport, distribute, promote, market or have sold or otherwise dispose of, a compound, product or process.

1.1.62 "**Exploitation**" means the act of Exploiting.

1.1.63 "**Extensions**" has the meaning set forth in Section 8.3.6.

1.1.64 "**Facility**" means MTEM's facility located at 9301 Amberglen Blvd., Suite 100, Austin TX 78729.

1.1.65 "**FDA**" means the United States Food and Drug Administration, and any successor agency thereto.

1.1.66 "**FFDCA**" means the United States Federal Food, Drug, and Cosmetic Act, 21 U.S.C. 301, et. seq., as it may be amended from time to time, and the rules, regulations, guidances , guidelines, and requirements promulgated or issued thereunder.

1.1.67 "**Field**" means diagnosis, prevention, control or treatment of any and all human and animal conditions, diseases or disorders.

1.1.68 "**First Commercial Sale**" means, with respect to any Licensed Product and with respect to any country or jurisdiction in the Territory, the first commercial sale of such Licensed Product by Takeda, its Affiliates, Sublicensees or Distributors to a Third Party for monetary value after all Regulatory Approvals required for the sale of such Licensed Product have been obtained in such country or jurisdiction, in each case for use or consumption of such Licensed Product in such country or jurisdiction by the general public; provided, that sales for clinical study purposes or compassionate, named patient (paid or unpaid) or similar use shall not constitute a First Commercial Sale.

1.1.69 "**First Line MM Use**" means approved for use as the initial therapy in Multiple Myeloma patients who have not been previously treated for the condition with other therapies.

1.1.70 "**FTE**" means one (1) person (or the equivalent of one (1) person) working full time for one (1) twelve (12) month period in a Development, regulatory or other relevant capacity employed or contracted by a Party and assigned to perform specified work, with such commitment of time and effort to constitute one (1) employee performing such work on a full-time basis, which for purposes hereof shall be eighteen hundred (1,800) hours per year.

1.1.71 "**FTE Costs**" means, for any period, the FTE Rate multiplied by the number of FTEs who perform Program Activities pursuant to this Agreement in accordance with this Agreement.

1.1.72 "**FTE Rate**" means, as of the Effective Date, [***]; provided, that such rate shall be adjusted annually, with each annual adjustment effective as of each anniversary of the Effective Date, based on the percentage increase over the applicable annual period in the

Consumer Price Index (U.S. Bureau of Labor Statistics for all urban consumers, U.S. city average, all items). The FTE Rate shall be deemed inclusive of (a) all expenses incurred per FTE performing the applicable activities hereunder, including salaries, wages, bonuses, benefits, profit sharing, stock option grants, and FICA costs and other similar ex-U.S. costs, meals and entertainment, training, recruiting, relocation, operating supplies, and equipment and other disposable goods to the extent required for the performance of the applicable activities and (b) overhead associated with such FTE and the performance of its activities hereunder.

1.1.73 "**Fusion Protein Materials**" means CD38 SLT-A Fusion Proteins or Components thereof.

1.1.74 "**Future Acquirer**" means a Third Party to any Change in Control transaction involving MTEM and such Third Party or any of such Third Party's Affiliates existing immediately prior to such Change in Control.

1.1.75 "**Future MTEM In-License**" means any agreement with a Third Party entered into by MTEM or any of its Affiliates after the Effective Date and during the Term pursuant to which MTEM obtains rights to Patent Rights or Know-How that would reasonably be expected to constitute MTEM Background IP or MTEM Program IP .

1.1.76 "**Good Manufacturing Practices**" or "**GMP**" means the then current standards for good manufacturing practices for pharmaceuticals, as set forth in the FFDCA and applicable regulations and guidances promulgated thereunder, including the Code of Federal Regulations, as amended from time to time.

1.1.77 "**Governmental Authority**" means any applicable multi-national, federal, state, local, municipal or other government authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court or other tribunal).

1.1.78 "**Improvement**" means all patentable and non-patentable inventions, discoveries, developments, enhancements, modifications or other know-how or improvements that derive from or relate to a Takeda Targeting Moiety, a 4019 Targeting Moiety, an SLT-A or any Patent Rights or Know-How of a Party, whether made by a Party, its Affiliate or a Third Party acting on a Party's behalf or jointly by both Parties or their Affiliates or Third Parties acting on their behalf.

1.1.79 "**IND** " means (a) in the United States, an Investigational New Drug Application, as defined in the FFDCA, filed with the FDA that is required to be filed with the FDA before conducting a Clinical Trial (including all supplements and amendments that may be filed with respect to the foregoing); or (b) any foreign counterpart of the foregoing.

1.1.80 "**Indemnitee**" has the meaning set forth in Section 10.2.1.

1.1.81 "**Indemnitor**" has the meaning set forth in Section 10.2.1.

1.1.82 "**Infringement Notice**" has the meaning set forth in Section 8.4.1.

1.1.83 "**IPA**" has the meaning set forth in the Recitals.

1.1.84 [***] means that certain drug [***] for the treatment of MM, including all formulations, dosage forms, prodrugs, or active metabolites thereof.

1.1.85 "**Joint Background IP**" means any Background IP owned jointly by both Parties or their respective Affiliates, including any Project Technology or Project IP, as defined under the 2016 Research Collaboration Agreement, other than that which is assigned to one Party and solely owned by such Party as set forth herein.

1.1.86 "**Joint Development Committee**" and "**JDC**" have the meaning set forth in Section 4.4.1.

1.1.87 "**Joint Finance Working Group**" has the meaning set forth in Section 4.7.1.

1.1.88 "**Joint Manufacturing Committee**" has the meaning set forth in Section 5.4.1.

1.1.89 "**Joint Other Program IP**" means the Joint Other Program Know-How and the Joint Other Program Patent Rights.

1.1.90 "**Joint Other Program Know-How**" means any Other Program Know-How that is conceived, discovered, developed or otherwise made by or on behalf of both Parties' (or their Affiliates' or (sub)contractors) employees or Third Parties acting on such Parties' behalf, in each case, in the course of such Party's or Affiliates' or (sub)contractors' performance of a Program under this Agreement. For clarity, Joint Other Program Know-How does not include any Other Program Know-How owned solely by Takeda or Other Program Know-How owned solely by MTEM.

1.1.91 "**Joint Other Program Patent Rights**" means any Patent Rights that claim Joint Other Program Know-How. For clarity, Other Program Patent Rights do not include MTEM Program Patent Rights or Takeda Program Patent Rights or Product Program Patent Rights.

1.1.92 "**Joint Patent Committee**" has the meaning set forth in Section 8.3.9(a).

1.1.93 "**Joint Steering Committee**" or "**JSC**" has the meaning set forth in Section 4.3.1.

1.1.94 "**Know-How**" means all proprietary technical information, processes, formulae, data, results, developments, materials, specifications, inventions, improvements, uses, methods, techniques, conceptions, knowledge, discoveries, know-how, trade secrets and other information, whether or not patentable, but that is not generally known, including any tangible embodiments and all intellectual property rights, excluding Patent Rights, in and to any of the foregoing.

1.1.95 "**Liabilities**" has the meaning set forth in Section 10.1.1.

1.1.96 "**Licensed Product**" means any product that incorporates or is comprised of one or more CD38 SLT-A Fusion Proteins.

1.1.97 "**Major Market Country**" means each of the United States, Japan, France, Germany, Italy, Spain and the United Kingdom.

1.1.98 "**Manufacture**" or "**Manufacturing** " means to make, have made, produce, manufacture, process, fill, finish, package, label, perform quality control and assurance testing, release, ship or store a compound or product or any intermediate or component thereof. When used as a noun, "Manufacture" or "Manufacturing" means any and all activities involved in Manufacturing a compound or product or any intermediate or component thereof.

1.1.99 "**Mono Product**" has the meaning set forth in the definition of Net Sales.

1.1.100 "**MTEM**" has the meaning set forth in the preamble hereto.

1.1.101 "**MTEM Background IP**" means the MTEM Background Patent Rights and the MTEM Background Know-How.

1.1.102 "**MTEM Background Know-How**" means any and all Know-How that (a) is Controlled by MTEM or any Affiliate of MTEM as of the Effective Date or, subject to Section 3.5, at any time during the Term and (b) relates to, comprises or consists of an SLT-A, SLT-A Fusion Protein, or a Licensed Product or the Exploitation of any of the foregoing and is necessary or useful to Develop, Manufacture, Commercialize or otherwise Exploit CD38 SLT-A Fusion Proteins or Licensed Products, excluding for clarity the Know-How in the Joint Background IP. MTEM Background Know-How includes the SLT-A Technology and the "SLT-A Technology" as defined under the Multi-Target Agreement.

1.1.103 "**MTEM Background Patent Right**" means any Patent Right that claims any MTEM Background Know-How.

1.1.104 "**MTEM Co-Development Cost Amount**" means the aggregate amount of Co-Development Costs that MTEM has paid related to the Post Phase Ia Program hereunder after its exercise of the Co-Development Option and through the Co-Development Termination Notice Period.

1.1.105 "**MTEM Indemnitees**" has the meaning set forth in Section 10.1.2.

1.1.106 "**MTEM Licensee**" has the meaning set forth in Section 3.7.

1.1.107 "**MTEM Program IP**" means the MTEM Program Patent Rights and the MTEM Program Know-How.

1.1.108 "**MTEM Program Know-How**" means any Program Know-How which is related to an Improvement of SLT-A Technology, but is not Takeda Program Know-How, 4019 Targeting Moiety Know-How or Product Program Know-How.

1.1.109 "**MTEM Program Patent Rights"** means any Patent Rights that claim MTEM Program Know-How.

1.1.110 "**MTEM Prosecution Patent Rights**" has the meaning set forth in Section 9.2.3.

1.1.111 "**MTEM Regulatory Documentation**" means Regulatory Documentation Controlled by MTEM or any of its Affiliates on or after the Effective Date concerning any of the following: SLT-As, SLT-A Fusion Proteins, MTEM Background IP or MTEM Program IP, which Regulatory Documentation is necessary or useful to Develop a CD38 SLT-A Fusion Protein or Exploit a Licensed Product.

1.1.112 "**MTEM SLT-A Program Know-How**" means any Program Know-How, which is related to an improvement to, or modification of, SLT-A Technology, and which is not Takeda Program Know-How or Product Program Know-How.

1.1.113 **"MTEM SLT-A Program Patent Rights**" means any Patent Rights that claim MTEM SLT-A Program Know-How.

1.1.114 "**MTEM Study Materials**" means control drug fusion materials generated by MTEM under the Early Stage Program Plan.

1.1.115 "**Multi-Target Agreement**" has the meaning set forth in the Recitals.

1.1.116 "**Multiple Myeloma**" or "**MM**" means multiple myeloma as defined by the National Cancer Institute in the United States.

1.1.117 "**NDA**" means a New Drug Application filed with the FDA in conformance with Applicable Law, or the foreign equivalent of any such application in any other country filed with a Regulatory Authority to obtain marketing approval for a pharmaceutical product.

1.1.118 "**Net Sales**" means the [***] invoiced amounts for all Licensed Products sold by or for Takeda, its Affiliates and Sublicensees to Third Parties (including wholesalers or Distributors but not any Affiliate or Sublicensee of Takeda), after deduction (if not already deducted in the amount invoiced) of the following items paid by Takeda, its Affiliates and Sublicensees, provided and to the extent that such items are incurred or allowed and do not exceed reasonable and customary amounts in the market in which such sales occurred and are not inconsistent with other similar products of Takeda:

(a) any [***], including [***];

(b) any [***];

(c) any [***], including [***];

(d) any charges for [***], in each case to the extent borne by Takeda, or its Affiliates or Sublicensees; and

(e) any [***] given or made with respect to [***].

In the event a Licensed Product is a Combination Product, the Net Sales attributable to such Combination Product for a given country shall be calculated as follows:

If Takeda, its Affiliate or Sublicensee separately sells in such country, (i) a product containing as its sole active ingredient a CD38 SLT-A Fusion Protein (the "**Mono Product**") and (ii) the other active ingredient in the Licensed Product, then for purposes of the royalties and sales milestones

set forth herein, Net Sales for such Combination Product shall be calculated by multiplying actual Net Sales of such Combination Product by the fraction A/(A+B) where: "A" is Takeda's (or its Affiliate's or Sublicensee's, as applicable) average Net Sales price during the period to which the Net Sales calculation applies for the Mono Product in such country or other jurisdiction and "B" is Takeda's (or its Affiliate's or Sublicensee's, as applicable) average Net Sales price during the period to which the Net Sales calculation applies in such country or other jurisdiction, for products that contain as their sole active ingredients the other active ingredients in such Combination Product.

If Takeda, its Affiliate or Sublicensee separately sells in such country or other jurisdiction the Mono Product but does not separately sell in such country or other jurisdiction products containing as their sole active ingredients the other active ingredients in such Combination Product, then for purposes of the royalties and sales milestones set forth herein, Net Sales for such Combination Product shall be calculated by multiplying the Net Sales of such Combination Product by the fraction A/C where: "A" is Takeda's (or its Affiliate's Sublicensee's, as applicable) average Net Sales price during the period to which the Net Sales calculation applies for the Mono Product in such country or other jurisdiction, and "C" is Takeda's (or its Affiliate's or Sublicensee's, as applicable) average Net Sales price in such country or other jurisdiction during the period to which the Net Sales calculation applies for such Combination Product.

If Takeda, its Affiliates and Sublicensees do not separately sell in such country or other jurisdiction both the Mono Product and the other active ingredients in such Combination Product, then the Net Sales attributable to such Combination Product shall be determined by the Parties in good faith taking into account the medical contribution to such Combination Product of the CD38 SLT-A Fusion Protein on the one hand, and all of the other active ingredients, as applicable, collectively, on the other hand; provided, that if the Parties cannot agree on such relative value, the Dispute shall be resolved pursuant to Section 12.3.

All of the foregoing deductions from the gross invoiced sales prices of Licensed Products shall be determined in accordance with the applicable Accounting Standards. In the event that Takeda, its Affiliates or Sublicensees make any adjustments to such deductions after the associated Net Sales have been reported pursuant to this Agreement, the adjustments shall be reported and reconciled in the next report and payment of any royalties due.

1.1.119 "**Notice of Dispute**" has the meaning set forth in Section 12.3.1.

1.1.120 "**Notice Period**" has the meaning set forth in Section 11.3.1.

1.1.121 "**Opt-In** " means the withdrawal under Article 83(4) of the Agreement on a Unified Patent Court between the participating Member States of the European Union (2013/C 175/01) of the Opt-Out of a Patent Right.

1.1.122 "**Opt-Out** " means the opt-out of a Patent Right from the exclusive competence of the Unified Patent Court under Article 83(3) of the Agreement on a Unified Patent Court between the participating Member States of the European Union (2013/C 175/01).

1.1.123 "**Other Program IP**" means the Other Program Know-How and the Other Program Patent Rights.

1.1.124 "**Other Program Know-How**" means any Program Know-How that is not MTEM Program Know-How, Takeda Program Know-How or Product Program Know-How.

1.1.125 "**Other Program Patent Rights**" means any Patent Rights that claim Other Program Know-How.

1.1.126 "**Party**" and "**Parties**" have the meaning set forth in the preamble hereto.

1.1.127 "**Patent Challenge**" has the meaning set forth in Section 8.9.

1.1.128 "**Patent Right**" means any and all national, regional and international (a) issued patents and pending patent applications (including provisional patent applications), (b) patent applications filed either from the foregoing or from an application claiming priority to the foregoing, including all converted provisionals, substitutions, continuations, continuations-in-part, divisions, renewals and continued prosecution applications, and all patents granted thereon, (c) patents-of-addition, revalidations, reissues, reexaminations and extensions or restorations (including any supplementary protection certificates and the like) by existing or future extension or restoration mechanisms, including patent term adjustments, patent term extensions, supplementary protection certificates or the equivalent thereof, (d) inventor's certificates, utility models, petty patents, innovation patents and design patents, (e) other forms of government-issued rights substantially similar to any of the foregoing, including so-called pipeline protection or any importation, revalidation, confirmation or introduction patent or registration patent or patent of additions to any of such foregoing and (f) United States and foreign counterparts of any of the foregoing.

1.1.129 "**Payments**" has the meaning set forth in Section 6.10.

1.1.130 "**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture or other similar entity or organization, including a government or political subdivision, department or agency of a government.

1.1.131 "**Phase I Clinical Trial**" means a Clinical Trial of a Licensed Product conducted by or on behalf of Takeda, its Affiliates or Sublicensees that generally provides for the first introduction into humans of a such Licensed Product with, the primary purpose of determining metabolism and pharmacokinetic properties and side effects of such product, in a manner that is generally consistent with 21 C.F.R. § 312.21(a), as amended (or its successor regulation), excluding, for clarity any investigator-initiated Clinical Trials.

1.1.132 "**Phase Ia Clinical Trial**" means a Phase I Clinical Trial through the end of dose escalation and determination of the maximally tolerated dose. The plan and budget for the Phase Ia Clinical Trial is set forth in Schedule 1.1.132 and as may be updated from time to time subject to Section 2.1.1.

1.1.133 "**Phase II Clinical Trial**" means a Clinical Trial of a Licensed Product conducted by or on behalf of Takeda, its Affiliates or Sublicensees on a sufficient number of subjects for making (and the principal purpose of which is to make) a preliminary determination as to whether a pharmaceutical product is safe for its intended use and obtaining (and to obtain)

sufficient information about such product's efficacy, in a manner that is generally consistent with 21 C.F.R. § 312.21(b), as amended (or its successor regulation), or a similar clinical study prescribed by the Regulatory Authorities in a country or jurisdiction outside the United States, to permit the design of further Clinical Trials of such Licensed Product, excluding, for clarity any investigator-initiated Clinical Trials.

1.1.134 "**Phase III Clinical Trial**" means a Clinical Trial of a Licensed Product with a defined dose or a set of defined doses of such Licensed Product and conducted by or on behalf of Takeda, its Affiliates or Sublicensees on a sufficient number of subjects for ascertaining (and that is designed to ascertain) the overall risk-benefit relationship of the Licensed Product for its intended use and determining (and to determine) warnings, precautions, and adverse reactions that are associated with such Licensed Product in the dosage range to be prescribed, in a manner that is generally consistent with 21 C.F.R. § 312.21(c), as amended (or its successor regulation), or a similar clinical study prescribed by the Regulatory Authorities in a country or jurisdiction outside the United States, which trial is necessary to support Regulatory Approval of such Licensed Product, excluding, for clarity any investigator-initiated Clinical Trials.

1.1.135 "**PHSA**" means the United States Public Health Service Act, as may be amended, or any subsequent or superseding law, statute or regulation.

1.1.136 "**PMDA**" means the Pharmaceuticals and Medical Devices Agency in Japan, or any successor agency thereto.

1.1.137 "**Post-Approval Requirements**" means any Clinical Trial or other activity that is either required to be conducted after the grant of Regulatory Approval by a Regulatory Authority as a condition of granting such Regulatory Approval or otherwise pursued in the life cycle management plan to maximize access to impact or access to the Licensed Product.

1.1.138 "**Post Phase Ia Program**" means the nonclinical, manufacturing and Clinical Trial program to be conducted under the Post Phase Ia Program Plan, including any Post-Approval Requirements, but excluding any investigator sponsored trials.

1.1.139 "**Post Phase Ia Program Activities**" means Development activities carried out pursuant to the Post Phase Ia Program Plan.

1.1.140 "**Post Phase Ia Program Plan**" means that certain plan adopted pursuant to Section 2.1.2(b) with respect to any Post Phase Ia Clinical Trial(s), including Post-Approval Requirements.

1.1.141 "**Product Information**" has the meaning set forth in Section 7.1.

1.1.142 "**Product Program IP**" means the Product Program Know-How and the Product Program Patent Rights.

1.1.143 "**Product Program Know-How**" means any Program Know-How in each case that is related to one or more of the following: (a) any CD38 SLT-A Fusion Protein or other SLT-A conjugate comprising a Takeda Targeting Moiety or 4019 Targeting Moiety, any corresponding SLT-A Fusion Protein compositions of matter (e.g., compounds, compositions,

combinations and formulations), and methods of making or using any of the foregoing; and conjugates and fusion proteins comprising any of the foregoing and (b) any 4019 Targeting Moiety, in each case (a) and (b), that is not solely related to a Takeda Targeting Moiety or any other proprietary compound of Takeda or the SLT-A Technology.

1.1.144 "**Product Program Patent Rights**" means any Patent Rights that claim Product Program Know-How.

1.1.145 "**Product Trademarks**" has the meaning set forth in Section 8.6.

1.1.146 "**Program**" or "**Programs**" means the Early Stage Program and the Post Phase Ia Program.

1.1.147 "**Program Activities**" means the Early Stage Program Activities and the Post Phase Ia Program Activities.

1.1.148 "**Program IP**" means the Program Know-How and the Program Patent Rights.

1.1.149 "**Program Know-How**" means Know-How, Improvements and other inventions that are conceived, discovered, developed or otherwise made by or on behalf of one or both of the Parties or their Affiliates in connection with the performance of the Program Activities after the Effective Date, whether or not patented or patentable. For clarity, Program Know-How is divided into four categories: Takeda Program Know-How, MTEM Program Know-How, Product Program Know-How and Other Program Know-How.

1.1.150 "**Program Patent Rights**" means any Patent Rights that claim Program Know-How.

1.1.151 "**Program Plan**" means either the Early Stage Program Plan or the Post Phase Ia Program Plan.

1.1.152 "**Project Manager**" has the meaning set forth in Section 4.2.1.

1.1.153 "**Publication**" has the meaning set forth in Section 7.4.

1.1.154 "**Quality Agreement**" has the meaning set forth in Section 5.5.

1.1.155 "**Reciprocal Technology**" means any Know-How or Improvements (and any Patent Rights with respect thereto) conceived, discovered, developed or otherwise made by or on behalf of any MTEM Licensee, whether alone or with MTEM, under or in connection with a license or grant of other rights or access in, to or under any SLT-A or SLT-A Fusion Protein (a) that derive from or relate to an SLT-A or SLT-A Fusion Protein, (b) the practice of which is necessary or useful for the Development, Manufacture, Commercialization or other Exploitation of CD38 SLT-A Fusion Proteins or Licensed Products and (c) that would be MTEM Background IP or MTEM Program IP were such Know-How or Patent Rights conceived, discovered, developed or otherwise made by MTEM alone.

1.1.156 "**Regulatory Approval**" means, with respect to a country or jurisdiction in the Territory, any and all approvals (including Drug Approval Applications), licenses,

registrations or authorizations of any Regulatory Authority necessary to commercially distribute, sell or market a Licensed Product in such country or jurisdiction, including, where applicable, (a) commercially reasonable pricing or reimbursement approval in such country or jurisdiction, (b) pre- and post-approval marketing authorizations (including any prerequisite Manufacturing approval or authorization related thereto) and (c) labeling approval.

1.1.157 "**Regulatory Authority**" means, with respect to a country or jurisdiction in the Territory, any national (*e.g.*, the FDA), supra-national (*e.g.*, the European Commission, the Council of the European Union, or the EMA) regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of a Regulatory Approval or otherwise exercising authority with respect to biopharmaceutical products in such country or jurisdiction.

1.1.158 "**Regulatory Documentation**" means all (a) applications (including all INDs), registrations, licenses, authorizations and approvals (including Regulatory Approvals), (b) correspondence and reports submitted to or received from Regulatory Authorities (including minutes and official contact reports relating to any communications with any Regulatory Authority) and all supporting documents with respect thereto, including all adverse event files and complaint files, and (c) clinical and other data contained, referenced or otherwise relied upon in any of the foregoing.

1.1.159 "**Representatives**" has the meaning set forth in Section 5.2.2.

1.1.160 "**Royalty Report**" has the meaning set forth in Section 6.11.1.

1.1.161 "**Royalty Term**" means, on a Licensed Product-by-Licensed Product and country-by-country basis, the period commencing upon the First Commercial Sale of a Licensed Product in such country and ending upon the latest to occur of: (a) the date of expiration of the last Valid Patent Claim of the MTEM Background Patent Rights, the Patent Rights in the Joint Background IP , the MTEM Program Patent Rights, the Takeda Program Patent Rights (other than any Takeda Targeting Moiety IP) and the Product Program Patent Rights, in each case that would be infringed by the sale of the applicable Licensed Product in the applicable country, if not for Takeda's ownership thereof or the licenses granted hereunder; (b) the date of expiration of any regulatory exclusivity for such Licensed Product in such country; and (c) [***] from the First Commercial Sale of such Licensed Product in such country.

1.1.162 "**SLT-A**" means (a) any Shiga or Shiga-like toxin A s ubunit or fragment thereof, including variants, such as deimmunized variants, variants with heterologous epitopes, furin-cleavage resistant variants and combinations thereof, including those listed on Schedule 1.1.162 hereto, which shall be updated periodically by MTEM, and (b) any Improvements to any of the foregoing.

1.1.163 "**SLT-A Fusion Protein**" means any SLT-A conjugated, fused (*e.g.*, as a single polypeptide chain), or otherwise combined with any Antibody or other targeting moiety. For clarity, CD38 SLT-A Fusion Proteins containing a Takeda Targeting Moiety or 4019 Targeting Moiety are SLT-A Fusion Proteins.

1.1.164 "**SLT-A Technology** " means the Patent Rights set forth on Schedule 1.1.164 and any inventions claimed or described therein.

1.1.165 "**Sublicensee**" means any Person (other than an Affiliate of Takeda or a Distributor) that is granted a sublicense under Section 3.4 by Takeda or its Affiliate in accordance with the terms of this Agreement to Develop or Commercialize Licensed Products.

1.1.166 "**Supply Agreement**" has the meaning set forth in Section 5.1.1.

1.1.167 "**Supply Payment**" has the meaning set forth in Section 5.1.3.

1.1.168 "**Supply Price**" means, with respect to a quantity of Development Material, the cost of goods of such Development Material *[***]*. To the extent Development Material is Manufactured directly by MTEM, the cost of goods will equal the fully burdened cost of Manufacturing such Development Material, consisting of the cost of raw materials, direct and identifiable labor, product quality assurance/control costs and other direct and identifiable variable costs and appropriate direct and identifiable costs (or appropriate allocation thereof) yield losses (to the extent consistent with industry practice), storage, and shipping, rent and depreciation of capital expenditures, to the extent directly attributable and allocable to the Manufacture of such Development Material. Without limitation to the foregoing, (a) should any facility or equipment not be used to their full capacity for the Manufacture of Development Material, allocations shall be on the basis of that actually used for the Manufacture and supply of such Development Material and not any amount in respect of idle or unused capacity; and (b) the costs of goods (i) will be calculated in accordance with applicable Accounting Standards and include allocations that are commercially justifiable and consistent with fair industry practices, (ii) will exclude all costs that cannot be linked to a specific Manufacturing activity, such as charges for corporate overhead that are not controllable by the manufacturing plant, and (iii) will exclude any Third Party license payments owed or incurred by MTEM in connection with any Manufacturing activities. Cost of goods shall not include (A) costs that are expressly allocated to be borne by MTEM under this Agreement (*e.g.*, under Article II), (B) costs associated with capability building, unless expressly agreed in writing by the Parties, or (C) any inter-company mark-up between MTEM and its Affiliates. To the extent MTEM uses a contract manufacturer for any of such activities, the cost of goods means the amount paid to the applicable contract manufacturer, including any raw materials, reagents or other components directly purchased by MTEM on behalf of the CMO and any related shipping costs including shipping insurance costs. In no circumstances will the costs incurred by MTEM, and used to calculate the Supply Price, be double counted.

1.1.169 "**Takeda**" has the meaning set forth in the preamble hereto.

1.1.170 "**Takeda Background IP**" means the Takeda Background Know-How and the Takeda Background Patent Rights.

1.1.171 "**Takeda Background Know-How**" means Know-How in Background IP owned or Controlled by Takeda that is used, or provided for use, by Takeda, in the performance of the Program Activities, excluding Know-How in the Joint Background IP.

1.1.172 "**Takeda Background Patent Rights**" means any Patent Rights that claim Takeda Background Know-How.

1.1.173 "**Takeda Program IP**" means the Takeda Program Know-How and the Takeda Program Patent Rights.

1.1.174 "**Takeda Program Know-How**" means any Program Know-How that is related to either one or more of the following: any Takeda Targeting Moiety, including Improvements, modifications, fragments and derivatives thereof and corresponding compositions of matter (including conjugates and fusion proteins), methods of making or using any of the foregoing ("**Takeda Targeting Moiety Know-How**"), but excluding any Product Program Know-How and, for clarity, MTEM Program Know-How.

1.1.175 "**Takeda Program Patent Rights**" means any Patent Rights that claim Takeda Program Know-How, for clarity excluding any Product Program Patent Rights and Patent Rights in the Joint Background IP.

1.1.176 "**Takeda Targeting Moiety**" means any Antibody or other targeting moiety owned or in-licensed from a Third Party by Takeda or its Affiliates, whether in a mono-, bi- or multi-specific format, such as a peptide, cyclic peptide, small molecule or related molecular structure capable of being Directed through its binding to the Target, including non-immunoglobulin scaffolds, including fibronectin, lipocalin, protein A, ankyrin, thioredoxin, and the like.

1.1.177 "**Takeda Targeting Moiety IP**" means the Takeda Targeting Moiety Know-How and the Takeda Targeting Moiety Patent Rights.

1.1.178 "**Takeda Targeting Moiety Know-How**" has the meaning set forth in the definition of Takeda Program Know-How.

1.1.179 "**Takeda Targeting Moiety Patent Rights**" means any Patent Rights that claim the Takeda Targeting Moiety Know-How.

1.1.180 "**Target**" means CD38 and naturally occurring variants or isoforms thereof as well as any fragment or peptide of CD38, variants or isoforms.

1.1.181 "**Tax**" or "**Taxes**" means any form of tax or taxation, levy, duty, charge, social security charge, contribution or withholding of whatever nature (including any related fine, penalty, surcharge or interest) imposed by, or payable to, any government, state or municipality, or any local, state, federal or other fiscal, revenue, customs, or excise authority, body or official in the Territory.

1.1.182 "**Technology Recipient**" has the meaning set forth in Section 5.2.

1.1.183 "**Technology Transfer**" has the meaning set forth in Section 5.2.

1.1.184 "**Technology Transfer Documentation**" has the meaning set forth in Section 5.2.1.

1.1.185 "**Term**" has the meaning set forth in Section 11.1.

1.1.186 "**Territory** " means all countries and jurisdictions in the world.

1.1.187 "**Third Party**" means any Person other than Takeda, MTEM and their respective Affiliates.

1.1.188 "**Third Party Action**" has the meaning set forth in Section 8.7.1.

1.1.189 "**Third Party SLT-A IP**" has the meaning set forth in Section 8.7.2.

1.1.190 "**Transition Point**" has the meaning set forth in Section 6.5.2.

1.1.191 "**Upfront Fee**" has the meaning set forth in Section 6.1.

1.1.192 "**Valid Patent Claim** " means, with respect to a Patent Right in a country or jurisdiction, any claim in (a) an issued Patent Right that has not (i) expired, irretrievably lapsed or been abandoned, revoked, dedicated to the public or disclaimed, including any applicable patent term adjustments or extensions, supplementary protection certificates and similar patent term extensions awarded by regional or national patent offices; or (ii) been found to be unpatentable, invalid or unenforceable through reissue, disclaimer or by an unreversed and unappealable decision of a Governmental Authority in such country or jurisdiction; or (b) a patent application which has been pending no longer than seven (7) years from its earliest non-provisional filing date, which has not been cancelled, withdrawn or abandoned without the possibility of revival. Notwithstanding the foregoing, should a patent claim in an application lose its status as a "Valid Patent Claim" because it has been pending for more than seven (7) years, it shall be reinstated as a "Valid Patent Claim" upon issuance.

1.1.193 [***] means the [***] and any of its Affiliates.

Section 1.2 **Certain Rules of Interpretation in this Agreement and the Schedules**.

1.2.1 Unless otherwise specified, all references to monetary amounts are to United States of America currency (U.S. Dollars);

1.2.2 The preamble to this Agreement and the descriptive headings of Articles and Sections are inserted solely for convenience of reference and are not intended as complete or accurate descriptions of the content of this Agreement or of such Articles or Sections;

1.2.3 Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or);

1.2.4 The words "include" and "including" have the inclusive meaning frequently identified with the phrases "without limitation" and "but not limited to";

1.2.5 The words "will" and "shall" have the same meaning;

1.2.6 Whenever this Agreement refers to a number of days, unless otherwise specified, such number refers to calendar days. Unless otherwise specified, deadlines within which any payment is to be made or act is to be done within or following specified time period after a date shall be calculated by excluding the day, Business Day, month or year of such date, as applicable, and including the day, Business Day, month or year of the date on which the period ends;

1.2.7 Whenever any payment is to be made or action to be taken under this Agreement is required to be made or taken on a day other than a Business Day, such payment shall be made or action taken on the next Business Day following such day to make such payment or do such act; and

1.2.8 Unless otherwise specified, references in this Agreement to any Article, Section, Exhibit or Schedule means references to such Article, Sections, Exhibits or Schedule of this Agreement.

ARTICLE II
DEVELOPMENT, REGULATORY AND COMMERCIALIZATION

Section 2.1 Development.

2.1.1 Early Stage Development. The Early Stage Program Plan is attached hereto as Schedule 1.1.51 and contains the budget for anticipated costs for the Early Stage Program (the "**Early Stage Development Budget**"). Not less than [***] per Calendar Year, and within the last [***] of a Calendar Year as possible, the JSC or designated subcommittee shall review and if necessary, update the Early Stage Program Plan (including the Early Stage Development Budget) with Takeda having final approval rights for the annually updated Early Stage Program Plan as set forth in Section 4.3.4. During the consideration of any Early Stage Program Plan update, the then-existing Early Stage Program Plan shall remain in effect. Subject to JDC oversight as set forth herein, each Party shall conduct all activities assigned to it under the Early Stage Program Plan using Commercially Reasonable Efforts, and shall from time-to-time during the performance of its obligations under the Early Stage Program Plan, report on such activities.

2.1.2 Post Phase Ia Development.

(a) Post Phase Ia Program Plan. Upon Takeda's election, but in no case later than [***] following completion (as described in the Early Stage Program Plan) of the Early Stage Program Plan, Takeda shall propose the Post Phase Ia Program Plan to MTEM in order to assist MTEM in determining whether to exercise its Co-Development Option as set forth below. Such plan will include the initial registration plan, to the extent reasonably determinable, as well as a more detailed [***] projected plan covering the specific anticipated nonclinical, manufacturing activities as well as the Clinical Trials to be conducted, budgets and associated timelines, and a regulatory plan for the lead Licensed Product in the Territory. Takeda, through the JDC or JSC, shall provide MTEM with an opportunity to provide input into the Post Phase Ia Program Plan and will reasonably consider MTEM's comments on the Post Phase Ia Program Plan, but Takeda shall have the [***] decision regarding the Post Phase Ia Program Plan. Takeda shall be solely responsible for all activities unless the activities are otherwise agreed to be performed by MTEM. The Parties' respective obligations for development, manufacturing, and otherwise for the Post Phase Ia Program Plan shall be as set forth in the Post Phase Ia Program Plan. Subject to Joint Development Committee oversight as set forth herein, each Party shall conduct all activities assigned to it under the Post Phase Ia Program Plan using Commercially Reasonable Efforts.

(b) Co-Development Option.

i. Subject to the provisions of this Agreement, Takeda grants to MTEM an option to Co-Develop the Licensed Products that are under Development in accordance with this Agreement, as further set forth herein ("**Co-Development Option**"). For clarity, MTEM's rights and obligations under the Co-Development Option shall extend to any or all Licensed Products that are Developed under this Agreement during the Term. Following delivery by Takeda of the Post Phase Ia Program Plan as set forth in Section 2.1.2(a), if MTEM

desires to exercise its Co-Development Option, then it shall do so by written notice to Takeda within [***] after such delivery has occurred, provided, however, that MTEM may not exercise its Co-Development Option unless it has paid all Co-Development Costs that have come due pursuant to this Agreement as of the date of such election (and for clarity shall pay Co-Development Costs during the pendency of the Co-Development Option period).

ii. If MTEM exercises the Co-Development Option, then, and [***], at the beginning of [***], the Joint Steering Committee or designated subcommittee shall prepare an updated Post Phase Ia Program Plan that covers future Development and Commercialization of Licensed Product(s) with a [***] detailed projection on costs and activities for MTEM's budgeting process. MTEM shall have the opportunity to provide input into the [***] updated Post Phase Ia Program Plan, such input to be reasonably considered by Takeda. Takeda, at the JSC level, shall have [***] decision making regarding any of the annual updates to the Post Phase Ia Program Plan subject to Section 4.3.4.

iii. If MTEM does not elect the Co-Development Option within the time period specified in this Section 2.1.2(b), then MTEM shall have no further right to fund or participate in the conduct of the Post Phase Ia Program Plan.

2.1.3 Diligence. Takeda shall use Commercially Reasonable Efforts to Develop one Licensed Product in each of the Major Market Countries, which Commercially Reasonable Efforts may be fulfilled through the activities of Takeda's Sublicensees. MTEM shall use Commercially Reasonable Efforts in conducting any Development activities assigned to it under this Agreement.

2.1.4 Records. MTEM and Takeda shall maintain, in good scientific manner, complete and accurate books and records pertaining to their activities under the Early Stage Program Plan and the Post Phase Ia Program Plan, in sufficient detail to verify compliance with their obligations under this Agreement and which books and records shall (a) be appropriate for patent and regulatory purposes, (b) be kept and maintained in compliance with Applicable Law, and (c) properly reflect all work done and results achieved in the performance of their activities hereunder. Such books and records shall be retained by the Parties for at least [***] after the expiration or termination of this Agreement in its entirety or for such longer period as may be required by Applicable Law. During the Co-Development Period, each Party shall have the right, during normal business hours and upon reasonable notice, to inspect and copy records of the other Party maintained pursuant to this Section 2.1.4 that specifically relate to this Agreement or the activities conducted hereunder (and the audited Party may redact any other portions of such records). After the end of the applicable retention period, if a Party desires to destroy any books or records maintained pursuant to this Section 2.1.4, such Party shall notify the other Party of such desire and the other Party shall have [***] after receipt of such notice to, at its option, either take custody of any such books or records the Party proposes to destroy or allow the Party to destroy such books and records.

2.1.5 Development Reports. In the event that the JDC and JSC have been disbanded, then Takeda shall provide to MTEM, through its designated contact person identified in accordance with Section 4.1. with an [***] written report that provides a summary of Takeda's significant activities related to Development of Licensed Product(s) and status of Clinical Trials and applications for Regulatory Approval necessary for marketing such Licensed

Product(s). Such reports shall be deemed Takeda's Confidential Information for the purposes of Article VII.

2.1.6 **Subcontracting**. Takeda shall have the right to designate its (sub)contractors for its Development activities hereunder. In particular, Takeda has certain preferred providers that it intends to or is required to use and MTEM has no right to object to the use of any such providers as (sub)contractors hereunder. MTEM shall have the right to designate its (sub)contractors for its Development activities hereunder, but such (sub)contractors and the corresponding activities shall be set forth in the Early Stage Program Plan and the Post Phase Ia Program Plan, respectively and subject to approval by the JDC and the JSC.

Section 2.2 **Regulatory Activities**.

2.2.1 As between the Parties, Takeda shall have the sole right to prepare, obtain and maintain Regulatory Approvals (including the setting of the overall regulatory strategy therefor) and other submissions and to conduct communications with the Regulatory Authorities, for CD38 SLT-A Fusion Proteins or Licensed Products in the Territory (which shall include filings of or with respect to INDs and other filings or communications with the Regulatory Authorities with respect to Program Activities). During the Co-Development Period, Takeda shall notify MTEM in advance of any NDA, BLA or IND submissions in any Major Market Country (including any centralized European filing with the EMA) and any material regulatory communications submitted in any Major Market Country relating to any such NDA, BLA or IND submission with reasonable time for MTEM to review and make comments to Takeda, which comments Takeda shall consider in good faith. During the Term, MTEM shall not file any IND, NDA or BLA with respect to any CD38 SLT-A Fusion Protein or Licensed Product (or any other regulatory filing with respect to any CD38 SLT-A Fusion Protein or Licensed Product) unless it is required by law to do so. MTEM shall support Takeda, as may be reasonably necessary, in obtaining Regulatory Approvals for the Licensed Products and in the activities in support thereof, including providing all documents or other materials in the possession or control of MTEM or any of its Affiliates as may be necessary or useful for Takeda or any of its Affiliates or its or their Sublicensees to obtain Regulatory Approvals for Licensed Products including access to the contents in the MTEM Regulatory Documentation that are necessary or useful to compile the Chemistry Manufacturing and Controls section of an IND submission or an application for Regulatory Approval with respect to a Licensed Product and such other relevant information MTEM has created or possesses or Controls as Takeda may reasonably request.

2.2.2 All Regulatory Documentation (including all Regulatory Approvals) relating to the Licensed Products with respect to the Territory shall be owned by, and shall be the sole property and held in the name of, Takeda or its designated Affiliate, Sublicensee or designee. MTEM shall, and does hereby, assign, and shall cause its Affiliates and its and their licensees and Sublicensees to assign, to Takeda or its designated Affiliate, Sublicensee or designee, without additional compensation, all of its right, title and interest in and to all Regulatory Documentation to the extent solely relating to any Licensed Product.

2.2.3 Upon request by Takeda, MTEM shall provide the FDA and other applicable Governmental Authorities full access to all MTEM Regulatory Documentation, MTEM Background Know-How and Program IP, in each case, to the extent necessary or useful for the FDA and other applicable Governmental Authorities to consider and approve Takeda, an

Affiliate, a Sublicensee or a Third Party as a manufacturer of the Licensed Products, or to consider and act upon any filings with such Governmental Authorities with respect to Licensed Products, including for Regulatory Approvals of the Licensed Products.

Section 2.3 Commercialization.

2.3.1 Except with respect to those obligations of MTEM in support thereof as provided hereunder, Takeda shall have the sole right and responsibility, at its sole expense, for all aspects of the Commercialization of Licensed Products and the CD38 SLT-A Fusion Proteins contained therein including the sole right to invoice and book sales, establish all terms of sale (including pricing and discounts) and warehouse and distribute the Licensed Products in the Territory and perform or cause to be performed all related services. As between the Parties, Takeda shall handle all returns, recalls or withdrawals, order processing, invoicing, collection, distribution and inventory management with respect to the Licensed Products in the Territory.

2.3.2 Notwithstanding anything herein to the contrary, Takeda shall have the sole right and responsibility, at its sole expense, with regard to any investigator sponsored trials.

2.3.3 Takeda shall use Commercially Reasonable Efforts to Commercialize a Licensed Product in a Major Market Country if such Licensed Product receives all Regulatory Approvals in such Major Market Country.

Section 2.4 Use of Materials.

2.4.1 MTEM acknowledges and agrees that (a) it shall not use any Takeda Targeting Moiety or other materials supplied by Takeda to MTEM, or any 4019 Targeting Moiety for any purpose other than creating the CD38 SLT-A Fusion Proteins and delivering the resulting CD38 SLT-A Fusion Proteins to Takeda pursuant to, and otherwise performing its obligations under, the applicable Program Plan, (b) it shall only use Takeda Targeting Moieties or other materials supplied by Takeda to MTEM in compliance with all Applicable Laws, (c) it shall not transfer any Takeda Targeting Moieties or other materials supplied by Takeda to MTEM or grant any rights thereto to any Third Party without the express prior written consent of Takeda, (d) Takeda shall retain full ownership of, and all right title and interest to and under, all Takeda Targeting Moieties or other materials supplied by Takeda to MTEM and (e) at the end of the Co-Development Period, or upon earlier termination of this Agreement, MTEM shall at the instruction of Takeda either destroy or return any unused Takeda Targeting Moieties or other materials supplied by Takeda to MTEM, including destroying all information constituting or pertaining to the sequences of Takeda Targeting Moieties or other materials supplied by Takeda to MTEM.

2.4.2 Takeda acknowledges and agrees that (a) it shall not use any MTEM Study Materials supplied by MTEM to Takeda for any purpose other than (i) the activities assigned to Takeda under the Programs or (ii) activities within the scope of the Exclusive License, (b) it shall only use MTEM Study Materials supplied by MTEM to Takeda in compliance with all Applicable Laws, (c) except as otherwise provided hereunder or in the Early Stage Program Plan, it shall not transfer any MTEM Study Materials supplied by MTEM or grant any rights thereto to any Third Party without the express prior written consent of MTEM (except that Takeda shall be free to transfer the MTEM Study Materials as necessary or reasonably useful in connection with its exercise of the Exclusive License(s) for the Licensed Product(s)), (d) MTEM shall retain full ownership of, and all right, title, and interest in and to, all

MTEM Study Materials supplied by MTEM to Takeda and (e) upon earlier termination of this Agreement for any reason, Takeda shall at the instruction of MTEM either destroy or return any unused MTEM Study Materials supplied by MTEM to Takeda under the Early Stage Program.

2.4.3 Each Party acknowledges and agrees that (a) it shall not use any Fusion Protein Materials for any purpose other than (i) in the case of MTEM, activities set forth in the Early Stage Program Plan, or (ii) in the case of Takeda, activities set forth in the applicable Program Plan or otherwise within the scope of the Exclusive License for any Licensed Product, (b) it shall only use Fusion Protein Materials in compliance with all Applicable Laws, (c) except as otherwise provided hereunder or in the Early Stage Program Plan, (i) MTEM shall not transfer any Fusion Protein Materials or grant any rights thereto to any Third Party without the express prior written consent of Takeda and (ii) Takeda shall not transfer any Fusion Protein Materials or grant any rights thereto to any Third Party without the express prior consent of MTEM, but Takeda may, without such consent, transfer Fusion Protein Materials to its (sub)licensees and (sub)contractors in connection with the Program Activities or the exercise of the Exclusive License, and (d) MTEM shall at the instruction of Takeda either deliver to Takeda or destroy any Fusion Protein Materials arising out of the Early Stage Program in its possession or control. The restrictions set forth in this Section 2.4.3 are not intended to limit any rights to under the Multi-Target Agreement.

ARTICLE III
LICENSE GRANTS

Section 3.1 **Program License Grant to MTEM**. Subject to the terms and conditions of this Agreement, Takeda shall, and does hereby, grant to MTEM a non-exclusive, non-transferrable (except as set forth in Section 12.7), worldwide, royalty-free right and license in the Field, with the right to grant sublicenses only to permitted subcontractors under Section 2.1.6, to and under (a) the Takeda Background IP, (b) Takeda's interest in the Joint Background IP and (c) Takeda's right, title and interest in the Program IP and any "Program IP" as defined in the Multi-Target Agreement, in each case ((a)-(c)) solely to conduct Program Activities assigned to it hereunder.

Section 3.2 **Other License Grants**.

3.2.1 Subject to the provisions of this Agreement, Takeda hereby grants to MTEM a non-exclusive, worldwide, royalty-free, fully-paid right and license in the Field, with the right to grant sublicenses through multiple tiers in accordance with Section 3.4 , to and under Takeda's right, title and interest in any Other Program IP for all uses not set forth in the non-exclusive license grant under Section 3.1 or under Section 3.1.1 of the Multi-Target Agreement and excluding [***] with respect to the Target or any target that is a "Target" under the Multi-Target Agreement.

3.2.2 Subject to the provisions of this Agreement, MTEM hereby grants to Takeda a non-exclusive, worldwide, royalty-free, fully-paid and perpetual right and license in the Field, with the right to grant sublicenses through multiple tiers in accordance with Section 3.4, to and under MTEM's right, title and interest in the Other Program IP for all uses.

Section 3.3 **Exclusive License Grants and Rights of Reference**. MTEM shall, and does hereby, grant to Takeda, and its Affiliates, (a) an exclusive (even as to MTEM, except to the extent required for MTEM to perform its obligations under this Agreement), non-

transferrable (except as set forth in Section 12.7), royalty-bearing right and license to and under the MTEM Background IP, MTEM's interest in the Joint Background IP and Program IP, including Product Program IP and Other Program IP; (b) an exclusive right to access and reference to the MTEM Regulatory Documentation solely in connection with its exercise of its rights under clause (a) above; and (c) under the licenses granted in clause (a) and (b) of this Section 3.3, the right to grant sublicenses through multiple tiers in accordance with Section 3.4, and, in each case ((a), (b) and (c)), solely to Develop, Manufacture, Commercialize and otherwise Exploit Licensed Products in the Field (the "**Exclusive License**"). The Exclusive License shall continue (i) [***]. For clarity, the Exclusive License does not include the right (and no licenses are granted by MTEM hereunder) to incorporate into a Licensed Product or any other product any SLT-A conjugated, fused or other otherwise combined with any antibody, targeting moiety or other molecule selected, generated or optimized to preferentially bind to any target other than the Target.

Section 3.4 **Rights to Sublicense**. Each Party shall have the right to grant sublicenses (or further rights of reference) to its Affiliates and Third Parties (a) the license granted in Section 3.1 to permitted subcontractors or (b) through multiple tiers of sublicensees, under the licenses and rights of reference granted in Section 3.3, as applicable, to the extent set forth in Section 3.1, Section 3.2 or Section 3.3, as applicable; provided that in each case ((a) and (b)) any such Affiliate or Third Party is bound to the following provisions of this Agreement, *mutatis mutandis,* including obligations of confidentiality and assignment of inventions comparable in scope to those included herein and any such sublicenses shall otherwise be consistent with the terms and conditions of this Agreement. Notwithstanding the foregoing, Takeda shall have the right to sublicense the licenses in Section 3.3 to academic and research institutions without violating the foregoing sentence, provided that Takeda uses reasonable efforts to ensure that it or its Affiliates own the IP generated therefrom (or at a minimum obtains a non-exclusive license that is sublicensable to MTEM within the scope of the licenses granted to MTEM hereunder). Each Party shall remain obligated for all of its obligations under this Agreement, to the extent not satisfied by or on behalf of such Party or any of its sublicensee, and, as between the Parties, will remain liable for all acts or omissions of its sublicensees hereunder.

Section 3.5 **Use and Licensing of Third Party Technologies**.

3.5.1 [***] If MTEM intends to use any intellectual property licensed or acquired from a Third Party [***] in the course of conducting activities under this Agreement, and such use by MTEM or Takeda hereunder would (a) require a Party to [***] or (b) result in [***], then MTEM shall provide notice thereof to Takeda and the Parties shall discuss in good faith (x) whether [***] (y) the [***], and (z) in the case of a [***], whether [***] will bear any of such [***]. If the Parties cannot agree upon the foregoing, then MTEM shall not [***] under this Agreement. In the event the Parties agree to [***] (and on the matters described under (x), (y) and (z) of this Section 3.5.1), MTEM may enter into such license and such license shall be sublicensable to Takeda through multiple tiers. Unless otherwise agreed in writing, notwithstanding the foregoing, unless and until this Agreement terminates in its entirety, and solely with respect to use in any Program, MTEM shall not enter into any such Third Party license, or discuss with a Third Party about entering into any such Third Party license, without the prior written consent of Takeda, said consent not to be unreasonably withheld.

3.5.2 Except for any licenses covered by Section 3.5.1, Takeda shall have all decision making authority as to whether to take any license and (a) to include in Co-

Development Costs any payments due to such Third Party during the Co-Development Period, or (b) for any payments to a Third Party by Takeda not covered by clause (a), such amounts may be deducted under Section 6.4.2 to the extent qualifying for a reduction thereunder.

3.5.3 Except as set forth in Section 3.5.1, if Takeda intends to use in the Early Stage Program any new intellectual property acquired from a Third Party [***], and such use by MTEM or Takeda hereunder would trigger a need to take a license to such intellectual property from a Third Party or would trigger a payment to such Third Party, then [***]. In the event that Takeda desires to take such a license, it will be sublicensable to MTEM pursuant to Section 3.1, solely to conduct MTEM's Program Activities under the Early Stage Program in accordance with Article II as set forth in the Early Stage Program Plan.

Section 3.6 **Existing Licenses; Compliance with Future In-Licenses**.

3.6.1 MTEM represents and warrants that the MTEM Background IP, as it exists as of the Effective Date, does not include any intellectual property that is in-licensed by MTEM or jointly owned with a Third Party.

3.6.2 MTEM shall not terminate or enter into any amendment to, and will not commit any acts or permit the occurrence of any omissions that would cause breach or termination of, any Future MTEM In-License that would adversely affect Takeda or otherwise adversely effect, limit, restrict, impact or otherwise impair Takeda's rights, or impose additional obligations on Takeda, under this Agreement without first obtaining the prior written consent of Takeda, such consent not to be unreasonably withheld; provided that (a) upon becoming aware of any such breach occurring and prior to any such termination right being triggered with respect to a Future MTEM In-License, MTEM will promptly provide notice thereof to Takeda and (b) unless and until a Future MTEM In-License provides (or MTEM enters into a written agreement, including an amendment to such Future MTEM In-License) that Takeda's rights under such Future MTEM In-License granted hereunder would survive any termination of such Future MTEM In-License without imposing any additional obligations on Takeda; unless otherwise agreed to in writing by the Parties.

Section 3.7 **IP Rights from Other Partners**. MTEM shall ensure that any future licensee of MTEM or any sublicensee with respect to the MTEM Background IP or of MTEM's right, title and interest in or to the Program IP (each, a "**MTEM Licensee**"), has agreed to (a) promptly disclose in writing to MTEM any Reciprocal Technology, including all relevant information and materials with respect thereto, and (b) assign such Third Party's rights and interests in such Reciprocal Technology to MTEM or grant to MTEM the irrevocable and royalty-free right and license to Exploit such Reciprocal Technology in connection with CD38 SLT-A Fusion Proteins, including the right to sublicense (through multiple tiers) to Third Parties (including to Takeda on an exclusive basis with respect to the Licensed Products (including any CD38 SLT-A Fusion Protein contained therein)) . MTEM will use commercially reasonable efforts to secure the above described license royalty-free to Takeda.

Section 3.8 **Disclosure of IP**.

MTEM shall (a) disclose and make available to Takeda the MTEM Background IP (including documents, data and information such as the MTEM Regulatory Documentation), Joint Background IP and Program IP in its possession or control as is necessary or reasonably useful to enable Takeda, its Affiliates, and its Sublicensees, to use and reference the MTEM

Background IP (including the MTEM Regulatory Documentation), the Joint Background IP and Program IP to practice the Exclusive License on the terms set forth herein and (b) upon Takeda's reasonable request and with at least [***] notice to MTEM, make available to Takeda at the Facility and any other facilities used in connection with the performance of the Program Activities with respect to the Target, MTEM's personnel to provide a reasonable amount of technical assistance and training to Takeda's personnel in order to enable Takeda to use the such intellectual property and MTEM Regulatory Documentation. Promptly upon the issuing, registration, filing, creation or conception of any new Patent Rights Controlled by MTEM claiming any new MTEM Background IP, MTEM shall amend Schedule 9.2.5 to add such Patent Rights and shall promptly provide such amended Schedule to Takeda.

Section 3.9 Target Exclusivity.

3.9.1 Until [***], MTEM agrees, on behalf of itself and its Affiliates (a) to collaborate exclusively with Takeda with respect to the Target and (b) except as set forth herein, not to Develop, Manufacture, use or Commercialize or otherwise Exploit any targeting moiety with respect to the Target (or enable any Third Party to do so) other than pursuant to this Agreement.

3.9.2 [***] Takeda agrees, on behalf of itself and its Affiliates (a) to collaborate exclusively with MTEM with respect to the [***] in products that contain a [***] and are [***] and (b) except as set forth herein, not to Develop, Manufacture, use or Commercialize or otherwise Exploit any [***] including [***] or enable any Third Party to engage in the activities set forth in this clause (b), other than pursuant to this Agreement.

3.9.3 For purposes of this Section 3.9, "collaborate exclusively" includes conducting the applicable activities, directly or indirectly, itself or in collaboration with a Third Party, including by granting any right or license, including granting any covenant not to sue, with respect to any of the foregoing, but for clarity an investment in a Third Party is not itself sufficient to constitute "collaboration".

ARTICLE IV
GOVERNANCE

Section 4.1 Alliance Managers.

4.1.1 **Appointment of Alliance Managers**. Promptly after the Effective Date, the Parties shall each appoint an individual who shall oversee contact between the Parties for all matters under this Agreement regarding, relating to or in connection with the conduct of a Program or activities with respect to CD38 SLT-A Fusion Proteins or Licensed Products (each, an "**Alliance Manager**"). The Alliance Managers may, but are not required to be, members of the Joint Steering Committee. The Alliance Managers shall have the right to attend all meetings of the Joint Steering Committee and may bring to the attention of the latter any matters or issues either of the Alliance Managers reasonably believes should be discussed by the Joint Steering Committee. Each Party shall bear its own costs and expenses, including travel and lodging, in connection with the activities of its Alliance Manager hereunder. Each Party may replace its Alliance Manager at any time by written notice to the other Party. A Party may replace its designated individual at any time by written notice to the other Party.

4.1.2 **Responsibilities**. The Alliance Managers shall be responsible for creating and maintaining a constructive work environment between the Parties. Without limiting the generality of the foregoing, the Alliance Managers shall:

(a) Identify and timely bring to the attention of their respective managements any disputes arising between the Parties related to the Agreement;

(b) Provide a single point of communication between the Parties with respect to the Agreements and the Parties' respective activities hereunder and thereunder;

(c) Plan and coordinate external communications by the Parties with respect to the Agreement and the Parties' respective activities;

(d) Ensure that meetings of the JSC occur as set forth in this Agreement, that procedures are followed with respect to such meetings (including the giving of proper notice and the preparation and approval of minutes) and that relevant action items resulting from such meetings are appropriately carried out or otherwise addressed; and

(e) Undertake such other responsibilities as the Parties may mutually agree in writing.

Section 4.2 **Project Managers**.

4.2.1 **Role**. Each Party will designate a single individual to serve as its manager under the Early Stage Program Plan and the Post Phase Ia Program Plan (each a "**Project Manager**"). A Project Manager will serve as the principal point of contact for the appointing Party for matters relating to that Party's performance under a Program Plan and will be responsible for implementing and coordinating, on a day-to-day basis, all activities under such plans and facilitating the exchange of information among the Parties regarding the performance under such Program Plan. The Project Managers may mutually delegate tasks and responsibilities to sub-managers or sub-program teams, working groups and other team members, as they deem appropriate to efficiently and effectively perform their respective obligations hereunder. Each Party may replace its Project Manager at any time upon written notice to the other Party.

4.2.2 **Meetings**. The Project Managers will meet as soon as practicable after the Effective Date and thereafter at [***] and at such additional times as the Project Managers or the Joint Development Committee or Joint Steering Committee as applicable may deem reasonably appropriate. Meetings of the Project Managers may be conducted in person or by teleconference or video conference as mutually agreed by the Project Managers. Additionally, the Project Managers (or their designees) will maintain close regular communications with each other as to the status of the ongoing activities under the Early Stage Program Plan or the Post Phase Ia Program Plan. Each Project Manager will keep accurate and complete records of his or her activities and meetings and will, from time to time as requested by the Joint Patent Committee or Joint Steering Committee, provide the Joint Patent Committee, Joint Development Committee or Joint Steering Committee with appropriate updates and information to keep the applicable committees apprised of each Party's performance under this Agreement.

Section 4.3 **Joint Steering Committee**.

4.3.1 Formation and Composition. Within [***] after the Effective Date, the Parties will establish a Joint Steering Committee (the "**Joint Steering Committee**" or "**JSC**") composed of [***] appointed senior executive representatives of each of Takeda and MTEM (which committee may be the same committee as the one established pursuant to the Multi-Target Agreement). A Party may change one or more of its representatives on the Joint Steering Committee upon written notice to the other Party or elect to have one of its members represented by a delegate at a meeting of the Joint Steering Committee, in which case such delegate shall have the same decision-making authority as the representative for whom he or she is acting as a delegate. The Joint Steering Committee will be chaired by a Takeda representative selected by Takeda from one of the Takeda's members of the Joint Steering Committee. The Parties may allow additional employees with experience relevant to the meeting agenda to attend meetings of the Joint Steering Committee subject to the confidentiality provisions of Article VII. Only JSC representatives or their appointed delegates shall have voting rights.

4.3.2 Functions and Authority. The Joint Steering Committee will be responsible for supervising and managing the Programs. Its functions will be:

(a) Attempting to resolve any disputes arising under any subcommittee of the Joint Steering Committee;

(b) Reviewing and approving Program Plans (including budgets contained therein) and amendments or other modifications thereto formulated by the Parties or the subcommittees as set forth herein;

(c) Monitoring and reviewing the overall progress of the Programs;

(d) Establish working teams or additional subcommittees; and

(e) Such other matters as the Parties may mutually agree in writing.

4.3.3 Meetings. Until disbanded, the Joint Steering Committee will meet in person or by teleconference or videoconference at least once every [***] until it is disbanded.

4.3.4 Decisions. Each Party shall have [***] on the Joint Steering Committee. During the Co-Development Period (a) in the event that the Joint Steering Committee is unable to reach unanimous agreement on any issue that is subject to its decision-making authority, then either Party may refer the matter for executive escalation pursuant to Section 4.3.7 except (b) Takeda's representatives on the JSC will have [***] decision making authority at the JSC level to approve any Early Stage Program Plan or the Post Phase Ia Program Plan and any of the annual updates to either of the foregoing as provided to the JSC annually pursuant to Section 2.1.1 and Section 2.1.2, provided that the matter is referred for executive escalation pursuant to Section 4.3.7 prior to Takeda exercising its [***] decision right pursuant to Section 12.3.2. If the matter is not resolved following executive escalation, Takeda's representatives on the JSC may exercise their [***] decision-making authority. However, in the case of any such updates which may occur outside or distinct from the annual update process, in no event may Takeda's representatives approve any such update without the agreement of MTEM's representatives if such decision (i) would cause the Budget Threshold for the applicable Program to be exceeded or (ii) assign to MTEM any additional activities under such plan.

4.3.5 Minutes and Reports. The Joint Steering Committee shall maintain accurate minutes of its meetings, including all proposed decisions and recommended actions or decisions taken. Promptly after each meeting, a member of the Joint Steering Committee designated by the Joint Steering Committee shall provide the Parties with draft minutes of each meeting, the status of the Programs, any issues requiring decisions and any proposed decisions. Within [***] of each meeting, the Joint Steering Committee chair shall provide final versions of the meeting minutes and such minutes will be recognized as having been accepted by the Parties.

4.3.6 Duration. Except as otherwise agreed by mutual written consent of the Parties, the Joint Steering Committee shall be in existence if during the Co-Development Period or for so long as any of the (a) Joint Development Committee, (b) Joint Manufacturing Committee, or (c) Joint Finance Working Group is in existence hereunder; *provided, however*, that Takeda shall have the authority to disband the Joint Steering Committee and other committees after Co-Development Period ends or pursuant to its rights in Section 12.7.2.

4.3.7 Escalation. If the Joint Steering Committee fails to reach unanimous agreement on a matter within its jurisdiction for a period in excess of [***] the matter shall be resolved in accordance with the procedures set forth in Section 12.3.

4.3.8 Subcommittees . The Parties may establish such subcommittees of the Joint Steering Committee as required under this Agreement or as deemed necessary by the Parties. Each such subcommittee shall consist of an equal number of representatives designated by each Party, which number shall be mutually agreed by the Parties. Each Party shall be free to change its representatives on notice to the other or to send a substitute representative to any subcommittee meeting, subject to the confidentiality provisions of Article VII; provided, however, that each Party shall ensure that at all times during the existence of any subcommittee, its representatives on such subcommittee have appropriate expertise and seniority for the then-current stage of Development or Manufacture of Licensed Products, in each case to the extent applicable to the role of the subcommittee. Each subcommittee shall report to, and any disputes under a subcommittee shall be referred to the Joint Steering Committee, subject to Section 4.3.7. The initial four (4) subcommittees of the Joint Steering Committee will be the Joint Development Committee, the Joint Manufacturing Committee, the Joint Patent Committee, and the Joint Finance Working Group, each as further described below.

Section 4.4 Joint Development Committee.

4.4.1 Formation and Composition. Within [***] after the Effective Date, the Parties shall establish a Joint Development Committee (the "**Joint Development Committee**" or "**JDC**") composed of [***] appointed representatives of each of Takeda and MTEM with experience appropriate to the functions of the JDC. A Party may change one or more of its representatives on the Joint Development Committee upon written notice to the other Party or elect to have one of its members represented by a delegate at a meeting of the Joint Development Committee. The Joint Development Committee will be chaired by a Takeda representative selected by Takeda from one of Takeda's members of the Joint Development Committee. The Parties may allow additional employees to attend meetings of the Joint Development Committee subject to the confidentiality provisions of Article VII.

4.4.2 Functions and Authority. The Joint Development Committee will be responsible for overseeing Development of the Licensed Product(s) under the Early Stage

Program as well as, if the Co-Development Option is exercised, the Post Phase Ia Program Plan. For so long as MTEM is obligated to bear its share of the Co-Development Costs, the Joint Development Committee's functions will be as follows with respect to activities within the scope of this Agreement:

(a) Proposing amendments or modifications to the Early Stage Program Plan or the Post Phase Ia Program Plan (including the budgets contained therein) to the JSC for approval;

(b) Development operations coordination;

(c) Coordinating regulatory submissions;

(d) Making any decisions that are assigned to the Joint Development Committee hereunder; and

(e) Such other matters as the Parties may mutually agree in writing.

4.4.3 Meetings. Until disbanded, the Joint Development Committee will meet in person or by teleconference or videoconference at least once every [***] during the Co-Development Period or as the Joint Steering Committee otherwise decides.

4.4.4 Decisions. Each Party shall have [***] vote on the Joint Development Committee. In the event that the Joint Development Committee is unable to reach unanimous agreement on any issue that is subject to its decision-making authority for a period in excess of [***] then the matter shall be referred to the JSC for decision.

4.4.5 Minutes and Reports. The Joint Development Committee will maintain accurate minutes of its meetings, including all proposed decisions and recommended actions or decisions taken. Promptly after each meeting, a member of the Joint Development Committee designated by the Joint Development Committee will provide the Parties with draft minutes of each meeting, the status of the Programs, any issues requiring decisions and any proposed decisions. Within [***] of each meeting, the Joint Development Committee chair will provide final versions of the meeting minutes and such minutes will be recognized as having been accepted by the Parties.

4.4.6 Duration. Except as otherwise agreed by mutual written consent of the Parties, the Joint Development Committee shall be in existence only for the Early Stage Program (including during any transition/wind-down period thereafter); provided, that if MTEM has exercised the Co-Development Option, the Joint Development Committee shall continue until the later of (a) the date on which all joint Development activities hereunder (including the transition of Development activities between the Parties) have ceased and (b) the end of the Co-Development Period.

Section 4.5 Joint Manufacturing Committee. The Joint Manufacturing Committee shall form and operate as set forth under Section 5.4.

Section 4.6 Joint Patent Committee. The Joint Patent Committee shall form and operate as set forth under Section 8.3.9.

Section 4.7 **Joint Finance Working Group**. The Joint Finance Working Group shall include one representative from each Party during the Co-Development Period. Its responsibilities shall be to:

4.7.1 **Formation and Composition**. The Parties will establish a joint finance working group committee (the "**Joint Finance Working Group**") composed of [***] appointed representative of each of Takeda and MTEM. A Party may at any time, by written notice to the other Party's representative on the Joint Finance Working Group, change its representative on the Joint Finance Working Group, or elect to be represented by a delegate at a meeting of the Joint Finance Working Group. The Joint Finance Working Group, will be chaired by the Takeda representative. The Parties may allow additional employees to attend meetings of the Joint Finance Working Group, subject to the confidentiality provisions of Article VII.

4.7.2 **Functions and Authority**. The Joint Finance Working Group will be responsible for only the following:

(a) facilitate the creation of budgets included in Program Plans and, including the annual updates thereto;

(b) reconcile financial and accounting matters between the Parties;

(c) initiate and execute an effective cost sharing process (cross-charges);

(d) cooperate to ensure that any such budget for a Calendar Year (or any other given period) can be interpreted for the purposes of both Parties' internal financial and audit reporting requirements, including each Party's fiscal year reporting as well as timely reporting of interim period costs incurred under any applicable Program Plan;

(e) monitor the budget and expense reporting requirements between the Parties related to Co-Development Costs to ensure that each Party is able to comply with its respective internal financial and audit reporting requirements and, as appropriate, recommending to the JSC for approval, changes to the reporting requirements under this Agreement; and

(f) undertake such other tasks with respect to the implementation and reporting for the Parties' sharing of Co-Development Costs as the Parties mutually agree in writing.

4.7.3 **Decisions**. It is not intended that the Joint Finance Working Group shall have decision-making authority but in the case of a dispute regarding any matter under the jurisdiction of the Joint Finance Working Group, either Party may escalate the matter to the JSC.

Section 4.8 **Quorum**. For the JSC, a quorum is required for any meeting of the JSC, which quorum will exist if at least [***] representatives (or a delegate thereof) of each Party is present. For the Joint Development Committee, Joint Manufacturing Committee and Joint Patent Committee, a quorum is required for any meeting of such committee, which quorum will exist if at least [***] of each Party is present. If a quorum exists, then the unanimous consent of all attending members of such committee is required in order for any decision to be approved or action taken on behalf of such committee.

Section 4.9 **Referral to the Joint Steering Committee** . In the event that the Joint Manufacturing Committee, Joint Development Committee or the Joint Patent Committee, as the case may be, cannot agree on a matter that is subject to its decision-making authority for a period in excess of [***] then except as otherwise expressly provided herein, matter shall be referred to the Joint Steering Committee.

ARTICLE V
MANUFACTURING AND SUPPLY

Section 5.1 **Responsibility for Manufacturing** . Subject to oversight by the Joint Manufacturing Committee, as applicable, and subject to this Section 5.1 , MTEM shall be primarily responsible for Manufacturing activities with respect to Development Material for a Licensed Product and Components thereof through completion of the first Phase I Clinical Trial for such Licensed Product. Notwithstanding the foregoing, Takeda shall, upon notice to MTEM at any time in Takeda's sole discretion, have the right to assume, or allow its designee to assume, some or all of such Manufacturing activities as provided in Section 5.2 In addition to the support that MTEM shall provide to Takeda with respect to regulatory filings under Section 2.2.1, at any time and upon Takeda's sole discretion and reasonable request, MTEM shall prepare manufacturing sections of regulatory filings when MTEM was responsible for the manufacturing activities covered by such filings.

5.1.1 **Supply Agreement**. Within [***] after the Effective Date (or such other period as agreed by the Parties), the Parties shall agree on a clinical supply agreement between the Parties pursuant to which MTEM would supply [***] as elected by Takeda, for the Phase I Program and (with MTEM's written approval) thereafter until the completion of the Technology Transfer, which supply agreement shall also include as Co-Development Costs any mutually agreed Manufacturing process development and supply chain development activities for the applicable Licensed Product (or CD38 SLT-A Fusion Protein) beyond the activities conducted pursuant to the [***] with GMP and shall be provided for up to [***] (and if needed prior to the Technology Transfer, such additional quantities as are reasonably requested by Takeda and can be supplied by MTEM through Commercially Reasonable Efforts). If no Supply Agreement for the supply of [***] is in place within the time period specified above, then MTEM shall supply [***] on the terms set forth herein. If Takeda initiates the Technology Transfer from MTEM and no Supply Agreement for the supply of [***] is in place, MTEM shall have the right to complete (or have completed) the Manufacture of any work-in-process Licensed Products or Components thereof and all such costs shall be deemed Co-Development Costs. The Joint Manufacturing Committee shall propose to the Parties, from time to time, amendments to the Supply Agreement as needed to meet Manufacturing objectives, but for clarity, such amendments shall be effective only if and when the Parties duly execute such an amendment.

5.1.2 **Third Party Suppliers**. Takeda acknowledges that MTEM may contract with one or more Third Parties to fulfill its obligations to Manufacture hereunder (each such Third Party, a "**Contract Manufacturing Organization**" or "**CMO**") subject to the approval of such CMO by the Joint Manufacturing Committee pursuant to Section 5.4.2. The Parties hereby agree that each approved CMO is approved solely for performance of Manufacturing within the scope of the applicable CMO agreement as approved by the Joint Manufacturing Committee. Through the Joint Manufacturing Committee, MTEM will keep Takeda informed of all activities of its CMOs and material information related to the Manufacturing [***] as the case may be. With respect to [***] MTEM will provide Takeda with reasonable access to its CMOs, including

permitting and enabling Takeda to accompany MTEM in audits and inspections and using reasonable efforts to cause its CMOs to permit Takeda to conduct audits and inspections, as well as for regulatory purposes and technical transfer. The Parties will coordinate audits and inspections through the Joint Manufacturing Committee. MTEM will provide Takeda with each CMO agreement prior to execution for review and comment and to ensure terms are consistent with MTEM's obligations hereunder and under the Supply Agreement. Comments received within [***] of receipt by Takeda will be given good faith consideration. MTEM will not materially change any agreement with an approved CMO as it relates to [***] including any change to the criteria agreed upon by the Parties through the Joint Manufacturing Committee to which [***] should conform to be considered acceptable for its intended use, except in accordance with the Quality Agreement and otherwise subject to agreement of the Joint Manufacturing Committee.

5.1.3 Payment. Takeda shall purchase [***] (including [***] purchased under the Supply Agreement) from MTEM at [***] of the Supply Price, plus all shipping costs, including shipping insurance thereof, for all delivered conforming [***] ("**Supply Payment**"); provided, however, the Joint Manufacturing Committee, as applicable, shall timely agree upon a schedule for the Supply Payments in consideration for Manufacturing activities (whether conducted directly by MTEM or contracted by MTEM with a CMO pursuant to Section 5.1.2) that are anticipated to take longer than [***]. Such schedule shall take into account the agreed upon Manufacturing activities and milestones for such activities and will include a mechanism for truing up to actual costs, including refunds or credit for non-conforming [***] all in accordance with agreed upon terms set forth in the Supply Agreement. All Supply Payments shall be contingent upon receipt by Takeda of an invoice from MTEM in accordance with the agreed upon schedule and which references the applicable purchase order number. Supply Payments shall be made within [***] of receipt of each such invoice. For clarity, any amounts paid by Takeda under this Section 5.1.3 shall be included in Co-Development Costs, and an equivalent amount shall be deemed paid by MTEM and similarly included in Co-Development Costs.

Section 5.2 Technology Transfer. Without limitation to MTEM's obligations under Section 3.9, at Takeda's request, for each Licensed Product, MTEM shall, at Takeda's expense (subject to a mutually agreed reasonable budget with internal time to be calculated on an FTE basis based on a rate that reflects MTEM's actual costs for such FTE), transfer the Manufacturing process for such Licensed Product and any CD38 SLT-A Fusion Proteins and components thereof to Takeda or its designee (the " **Technology Recipient**") as set forth in this Section 5.2, which transfer will comprise all necessary and available Know-How, documentation, methods, reagents, processes and other components to enable Takeda or its designee to independently Manufacture Licensed Products (such transfer, the "**Technology Transfer**").

5.2.1 Within [***] after Takeda notifies MTEM that it is exercising Technology Transfer rights under this Section 5.2 with respect to a Licensed Product, MTEM shall deliver to the Technology Recipient copies of the then-current Manufacturing process for and any other information reasonably required in order to Manufacture such Licensed Product and the CD38 SLT-A Fusion Proteins and other Components contained therein, including master batch records and any other manufacturing records (collectively, the "**Technology Transfer Documentation**").

5.2.2 During such [***] and upon Takeda's reasonable request with at least [***] notice to MTEM, MTEM shall also find a convenient time to permit representatives of the Technology Recipient or Takeda, as applicable, (the "**Representatives**") to access the Facility during normal business hours to observe the Manufacturing of the Licensed Product and CD38 SLT-A Fusion Proteins included therein. While the Representatives are at the Facility, MTEM shall make available to the Representatives employees of MTEM (or its Affiliates or subcontractors) for consultation with respect to the Technology Transfer Documentation and the Manufacturing process for the Licensed Product and the CD38 SLT-A Fusion Proteins and components contained therein.

5.2.3 At Takeda's request, MTEM shall use commercially reasonable efforts to effect assignments of any existing contract to the extent relating to one or more of the Licensed Products or the CD38 SLT-A Fusion Proteins and components contained therein, or to obtain for Takeda substantially all of the practical benefit and burden under such agreement to the extent applicable to Licensed Product and the CD38 SLT-A Fusion Proteins and components contained therein, including by entering into appropriate and reasonable alternative arrangements on terms agreeable to Takeda. Unless otherwise agreed by the Parties, any agreement with any Contract Manufacturing Organization or other service provider entered into by MTEM on or after the Effective Date that relates to any Licensed Product and the CD38 SLT-A Fusion Proteins and components contained therein shall be assignable or otherwise transferable to Takeda without the consent of the counterparty thereto to the extent related to any Licensed Product and the CD38 SLT-A Fusion Proteins and components contained therein.

5.2.4 Following the completion of the Technology Transfer, MTEM shall, for a period of up to [***] thereafter, provide the Technology Recipient with reasonable access to MTEM's employees for telephone or in person consultations regarding the Manufacture of the CD38 SLT-A Fusion Proteins and, if applicable, the Licensed Products.

5.2.5 Without limiting the foregoing, MTEM shall take, and shall cause its Affiliates and subcontractors to take, all action and to do all things necessary, proper or advisable to complete the Technology Transfer in accordance with this Section 5.2, including, as applicable, obtaining and making available such information, personnel, products, materials, services, facilities and other resources as reasonably necessary to enable the Technology Recipient to Manufacture the CD38 SLT-A Fusion Proteins and the Licensed Products.

5.2.6 Takeda shall pay MTEM for its reasonable, out-of-pocket costs and expenses incurred in the performance of its activities under this Section 5.2 (in which case such amounts paid shall be included as Co-Development Costs), unless the Technology Transfer is a response by Takeda to a material breach by MTEM of its supply obligations hereunder that is not cured by MTEM pursuant to this Agreement, in which case MTEM shall bear all of its own expenses.

Section 5.3 **Responsibility for Manufacturing After Technology Transfer** . Following completion of the Technology Transfer for a given Licensed Product, including any required validation, but subject at all times to MTEM's supply rights set forth in Section 5.1, Takeda or its designee shall have the sole right, at its cost, for Manufacturing activities with respect to Licensed Product and the CD38 SLT-A Fusion Proteins and Components contained therein; provided, that if Takeda will outsource such Manufacturing activities to a Third Party, Takeda will take into consideration MTEM's capabilities to continue to supply CD38 SLT-A

Fusion Proteins or the 4019 Targeting Moiety to Takeda at the Supply Price for use in Clinical Trials pursuant to the Supply Agreement.

Section 5.4 **Joint Manufacturing Committee**.

5.4.1 **Formation and Composition**. Within [***] after the Effective Date, the Parties will establish a joint manufacturing committee (the "**Joint Manufacturing Committee**") composed of [***] appointed representatives of each of Takeda and MTEM. A Party may change one or more of its representatives on the Joint Manufacturing Committee upon written notice to the other Party or elect to have one of its members represented by a delegate at a meeting of the Joint Manufacturing Committee. The Joint Manufacturing Committee will be chaired by a Takeda representative selected by Takeda from one of Takeda's members of the Joint Manufacturing Committee. The Parties may allow additional employees to attend meetings of the Joint Manufacturing Committee subject to the confidentiality provisions of Article VII.

5.4.2 **Functions and Authority**. The Joint Manufacturing Committee shall be responsible for developing a plan for manufacturing process development and supply chain development, including CMO selection, including coordinating inspections of potential CMOs by both Parties, reviewing the progress of such plan, reviewing and serving as a forum for discussing and approving changes to such plan, any Supply Agreement or change in facility location, and such other matters as the Parties may mutually agree in writing. The Joint Manufacturing Committee will keep the Joint Steering Committee reasonably informed of the foregoing.

5.4.3 **Decisions**. Each Party shall have [***] on the Joint Manufacturing Committee. The Joint Manufacturing Committee shall seek to make all decisions by consensus. In the event that the Joint Manufacturing Committee is unable to reach unanimous agreement on any issue that is subject to its decision-making authority, such matter shall be referred to the Joint Steering Committee for resolution, except that in the case of a dispute at Joint Steering Committee, Takeda will have [***] decision making authority with respect to Manufacturing activities at the JSC level, subject to Section 5.3.

5.4.4 **Duration**. Unless earlier terminated by mutual written consent of the Parties, the Joint Manufacturing Committee shall be in existence until the later of (a) completion of the [***] and (b) (i) completion of the [***] with respect to each Licensed Product that is intended to be clinically developed and (ii) [***] after filing of the last IND for such a Licensed Product has been filed (unless a clinical hold has been imposed with respect to such IND, in which case upon release of the clinical hold or termination of the clinical development of such Licensed Product).

Section 5.5 **Quality Agreement**. Takeda and MTEM shall, in connection with entering into the Supply Agreement, or as otherwise determined by the Joint Manufacturing Committee, and in any event prior to the Manufacture of any CD38 SLT-A Fusion Protein or Licensed Product by MTEM, prepare and enter into a reasonable and customary quality assurance agreement that sets forth the terms and conditions upon which MTEM will conduct its quality activities in connection with this Agreement (the "**Quality Agreement**"). Each Party shall duly and punctually perform all of its obligations under the Quality Agreement.

ARTICLE VI
PAYMENTS AND RECORDS

Section 6.1 **Upfront Fee**. Takeda shall pay to MTEM an upfront fee of Thirty Million U.S. Dollars ($30,000,000) ("**Upfront Fee**") within [***] after the Effective Date.

Section 6.2 **Development Milestone Payments**. Subject to the terms and conditions of this Agreement, including Section 6.5, Takeda shall pay to MTEM the following milestone payments within [***] after receipt of an invoice following the first occurrence of each event set forth below with respect to the first [***] to achieve such event, whether such events are achieved by Takeda, its Affiliates or Sublicensees, as follows:

Milestone Number	Milestone Event	Milestone Payments (Only One Payment Due for each Milestone Number)	
		MTEM Does Not Exercise the Co-Development Option (Column 1)	MTEM Exercises the Co-Development Option (Column 2)
1	[***]	[***]	[***]
2	[***]	[***]	[***]
3	[***]	[***]	[***]
4	[***]	[***]	[***]
5	[***]	[***]	[***]
6	[***]	[***]	[***]
7	[***]	[***]	[***]
8	[***]	[***]	[***]
9	[***]	[***]	[***]
10	[***]	[***]	[***]
11	[***]	[***]	[***]
12	[***]	[***]	[***]
13	[***]	[***]	[***]
14	[***]	[***]	[***]
15	[***]	[***]	[***]
16	[***]	[***]	[***]

Each milestone payment in this Section 6.2 is due only once and shall be payable only upon the first achievement of such milestone event (regardless of the number of [***]. Column 2

shall apply only if MTEM has exercised the Co-Development Option and the milestone event occurs during the Co-Development Period.

In the event that Column 2 applies, but MTEM has not paid its share of the Co-Development Costs in full prior to the date the milestone payment would be due, then Takeda shall pay the amount in Column 1 (if any) and then once such Co-Development Costs have been paid to Takeda, then Takeda shall pay the difference between the amount in Column 2 and Column 1 for the applicable milestone, such that Takeda has paid the total amount due to MTEM for the achievement of the applicable milestone. No amounts shall be due under this Section 6.2 for subsequent or repeated achievements of any such milestone event. For clarity, the maximum aggregate amount of milestone payments payable by Takeda pursuant to Column 2 above is Three Hundred Seven Million Five Hundred Thousand U.S. Dollars ($307,500,000). If MTEM does not exercise the Co-Development Option, the possible aggregate amount of milestone payments payable by Takeda pursuant to Column 1 above is One Hundred Sixty Two Million Five Hundred Thousand U.S. Dollars ($162,500,000).

If a [***] is considered [***] then following [***] then [***] above, as applicable, would be payable upon [***] based on such [***] (if such milestone has not been previously paid). For purposes of clarity, payment of [***] above will not preclude a future payment of [***] above.

Section 6.3 **Sales Milestone Payments**. Subject to the terms and conditions of this Agreement, including Section 6.5, Takeda shall pay to MTEM the following sales milestone payments within [***] after the end of the first Calendar Year in which the aggregate annual Net Sales of all Licensed Products in such Calendar Year reach the following thresholds for the first time:

Milestone for Aggregate Net Sales for a Calendar Year ("Aggregate Net Sales")	**Milestone Payments (Only One Payment Due for each Milestone Number)**	
	MTEM Does Not Exercise the Co-Development Option (Column 1)	**MTEM Exercises the Co-Development Option (Column 2)**
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]

Each sales milestone payment is separate and may only be earned once for the aggregate of all Licensed Products, however, if more than one Net Sales threshold is reached in the same Calendar Year, [***] shall be payable during such Calendar Year and [***] shall be payable on the [***] of the following Calendar Year. Column 2 shall apply only in the case in which MTEM has exercised the Co-Development Option and the milestone is achieved with respect to a Calendar Year prior to the Calendar Year in which the Co-Development Period ended. In the

event that Column 2 applies, but MTEM has not paid its share of the Co-Development Costs in full prior to the date the milestone payment would be due, then Takeda shall pay the amount in Column 1 (if any) and then once such Co-Development Costs have been paid to Takeda, then Takeda shall pay the difference between the amount in Column 2 and Column 1 for the applicable milestone, such that Takeda has paid the total amount due to MTEM for the achievement of the applicable milestone.

Section 6.4 **Royalties Payable by Takeda**.

6.4.1 In consideration for the Exclusive Licenses granted to Takeda herein, and subject to the terms and conditions of this Agreement, including Section 6.5, during the Royalty Term, or in the case in which MTEM exercised its Co-Development Option and the Co-Development Period remains in effect, the Co-Development Royalty Term for a Licensed Product, Takeda shall pay to MTEM royalties on the annual aggregate Net Sales of all Licensed Products sold during the Royalty Term or, if it applies per above in this Section 6.4.1, the Co-Development Royalty Term, for such Licensed Product in the applicable country, which royalties shall be paid at the following rates as set forth below:

Annual Aggregate Net Sales for all Licensed Products	**Royalty Rate in the case of No Exercise of Co-Development Option (Column 1)**	**Royalty Rate in the case of Co-Development (Column 2)**
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]

For avoidance of doubt, the incremental royalty rates set forth above shall only apply to that portion of the Net Sales of royalty-bearing Licensed Products that falls within the indicated range of sales. By way of example, and not in limitation of the foregoing, if, in the case in which the Royalty Term, rather than the Co-Development Royalty Term, applies during a Calendar Year, Net Sales of the Licensed Products, in the aggregate, were equal to [***] and MTEM has not exercised the Co-Development Option, the royalty payable by Takeda would be calculated by adding (i) the royalty due on such Net Sales with respect to the [***] at the first level percentage of [***] (under Column 1), and (ii) the royalty due on Net Sales for the Licensed Products with respect to the next [***] at the second level percentage of [***] (under Column 1). The obligation to pay royalties shall be imposed only once with respect to the same unit of Licensed Product sold by Takeda, its Affiliate or Sublicensee. Takeda shall have no obligation to pay any royalty with respect to Net Sales of any Licensed Product in any country after the Royalty Term or Co-Development Royalty Term, whichever is applicable, for such Licensed Product in such country is not in effect.

In the event that Column 2 applies, but MTEM has not paid its share of the Co-Development Costs in full prior to the date any royalty payment would be due, then Takeda shall pay royalties based on the rate in Column 1 (if any) and then once such Co-Development Costs have been paid to Takeda, then Takeda shall pay the difference between such royalties calculated based on Column 1 and the royalties that would have been calculated on the applicable Net Sales based on Column 2, such that Takeda has paid the total royalties due to MTEM.

6.4.2 Royalty Reductions.

(a) If and for so long as there is a Biosimilar Product being sold by a Third Party in a Calendar Quarter in a country in the Territory, then the royalties otherwise payable by Takeda to MTEM in such country pursuant to Section 6.4.1 shall be reduced by the percent set forth below of the amounts otherwise owed:

Biosimilar Products unit volume sales for each Licensed Product in such country, as a percentage of total sales of Licensed Products, on the one hand, and Biosimilar Products, on the other hand, in such country	**Reduction Rate**
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

The Parties will select a mutually agreeable independent Third Party to identify and calculate the Biosimilar Products unit volume sales for each Licensed Product in a Calendar Quarter in a country in the Territory and such unit volume sales amounts shall be included in each royalty report provided for under Section 6.11. In the event that such independent Third Party is not available or otherwise able to accurately determine or calculate the Biosimilar Product unit volume sales, Takeda shall calculate the Biosimilar Product unit volume sales based on available data in good faith. In the event MTEM disputes in good faith Takeda's calculation of any Biosimilar Product unit volume sales for a Licensed Product in a country in the Territory, MTEM may by written notice to Takeda require, at MTEM's cost, that such dispute be resolved in accordance with Section 12.3 by and submitted to a panel of experts; provided, that Takeda shall have the right to recover royalty reductions pursuant to this Section 6.4.2(a) if it prevails after resolution of any such dispute, by offsetting the excess payments with

future royalty payments owed to MTEM or obtaining a refund from MTEM, as elected by Takeda.

(b) Subject to the last sentence of Section 6.4.1 and if applicable, Section 6.4.2(f) , from and after the date on which a Licensed Product is sold in a country and is not at the time of sale covered by at least one Valid Patent Claim(s) of the MTEM Background Patent Rights, Patent Rights in the Joint Background IP, the Product Program Patent Rights, the MTEM Program Patent Rights, or the Takeda Program Patent Rights (including Takeda Targeting Moiety Patent Rights unless MTEM does not exercise the Co-Development Option or, if exercised, unless MTEM opts out of Co-Development for the applicable Licensed Product but otherwise excluding the Takeda Targeting Moiety Patent Rights) in the country in which such Licensed Product is sold and, if the Co-Development Royalty Term applies to such country, any regulatory exclusivity has expired in the country where such Licensed Product is sold, (i) the royalty rate that would otherwise apply with respect to such country shall each be reduced by (A) [***] in the case in which the Co-Development Royalty Term applies or (B) [***] if the Royalty Term applies, provided (ii) the royalty rate reduction in clause (i) shall no longer apply if thereafter a Valid Patent Claim within the Patent Rights specified above in this clause (b) becomes issued or granted in such country during the Royalty Term or the Co-Development Royalty Term, as the case may be.

(c) Takeda shall have the right to deduct costs and expenses in accordance with Section 8.7.2, to the extent not otherwise deducted under this Section 6.4.2.

(d) If in the reasonable opinion of Takeda, the Development, Manufacture, Commercialization or other Exploitation of a Licensed Product hereunder infringes or misappropriates or is reasonably expected to infringe or misappropriate any Patent Right, trade secret or other intellectual property right of a Third Party in any country or jurisdiction in the Territory, then Takeda shall have the right, but not the obligation, upon consultation with MTEM, to negotiate and obtain a license to or other rights from such Third Party to such rights as necessary to Develop, Manufacture, Commercialize or otherwise Exploit such Licensed Product in such country or jurisdiction. In the event that Takeda negotiates and obtains any such license from a Third Party, Takeda shall be entitled to deduct [***] of the amounts payable to such Third Party with respect to such Licensed Product from the royalties payable to MTEM hereunder for such Licensed Product in accordance with, and to the extent provided herein. If and for so long as Takeda makes payments to any Third Party under the Existing Third Party Agreement, Takeda may reduce the royalty payments otherwise due as set forth in Section 6.4 by up to [***] of the amount paid to the Third Party but this reduction shall not exceed [***] of Net Sales for the given period. In addition, the reductions under this clause (d), shall not , in the aggregate, reduce the royalty rate by more than [***] of the royalty rate that would otherwise apply to such Licensed Products. Takeda may carry forward, and deduct from future royalty payments due hereunder, any amounts which cannot be deducted under this clause (d) due to such [***] floor.

(e) If MTEM has or does receive research funding from a Third Party and in exchange is required to pay royalties or other amounts to such Third Party or its designee in consideration therefor, then MTEM shall be [***] responsible for [***]. For clarity, if and for so long as the Parties agree that Takeda should assume the duty to make payments to any Third Party under this clause (e), such payments shall be fully deducted from the amount payable to MTEM under Section 6.4.1.

(f) Any reductions set forth in this Section 6.4.2 shall be applied, on a Licensed Product-by-Licensed Product and country-by-country basis, to the royalty rate payable to MTEM under Section 6.4.1 in the order in which they are stated ((a), (b), (c), (d) and (e)) and if there is more than one reduction, then the reductions shall be cumulative. Notwithstanding anything to the contrary herein, except in the case in which the Co-Development Royalty Term applies for a Licensed Product in the Territory, the royalties payable to MTEM hereunder for such Licensed Product in such country for any Calendar Quarter shall not be reduced pursuant to clauses ((a) through (d)), collectively, to less than [***] of the amounts otherwise payable pursuant to Section 6.4.1 (prior to application of clauses (a) through (d)) by virtue of the application of the reductions (in (a) through (d)); provided, however, that Takeda may carry over, and deduct from royalties due in any subsequent Calendar Quarter(s), amounts paid to Third Parties pursuant to Section 6.4.2(c) or 6.4.2(d) if Takeda is unable to fully take such deduction as a result of the application of such floor for the given Calendar Quarter. For clarity, there is no floor under this clause (f) on the reduction of royalties payable for Licensed Products in the case in which the Co-Development Royalty Term applies (but the floors set forth in Section 6.4.2(d) shall apply).

(g) MTEM acknowledges and agrees that the sales levels set forth in this Section 6.2 and Section 6.3 shall not be construed as representing an estimate or projection of anticipated sales of the Licensed Products or implying any level of diligence or Commercially Reasonable Efforts in the Territory and that the sales levels set forth in Section 6.2 and Section 6.4 are merely intended to define Takeda's royalty and other payment obligations, as applicable, in the event such sales levels are achieved and that the sales levels set forth in Section 6.2 and Section 6.4 are merely intended illustrative purposes only.

Section 6.5 **Co-Development Cost Sharing**. The Parties shall share Co-Development Costs as follows:

6.5.1 **Early Stage Program**. MTEM and Takeda shall [***] of the Co-Development Costs with respect to the Early Stage Program (whether incurred by MTEM or Takeda or their respective Affiliates, licensees, or Sublicensees), and including any costs incurred by Takeda under the IPA and markups in the Supply Price, subject to Section 2.1.2(b) and Article IV.

6.5.2 **Post Phase Ia Program**. Subject to Section 6.5.3, if MTEM has exercised the Co-Development Option in accordance with Section 2.1.2(b), MTEM and Takeda shall [***] of the Co-Development Costs with respect to the Post Phase Ia Program (whether incurred by MTEM or Takeda or their respective Affiliates, licensees, or Sublicensees), subject to Section 2.1.2(b) and Article IV, until, in the case of the delivery of a notice (the "**Co-Development Termination Notice**") pursuant to the next sentence , the effective date of the termination of MTEM's Co-Development Option. If, at any point after MTEM's exercise of the Co-Development Option, MTEM elects to end its Co-Development hereunder, it may do so by providing Takeda with [***] prior written notice (the "**Co-Development Termination Notice Period**"). MTEM shall continue to be responsible for [***] of the Co-Development Costs incurred prior to the end of the Co-Development Termination Notice Period, in accordance with Section 6.5.2. MTEM shall not be obligated pay for any Co-Development Costs incurred after the end of the Co-Development Termination Notice Period. Effective as of the end of Co-Development Termination Notice Period, Takeda's milestone obligations under this Article VI shall be reduced to the lower amounts in Column 1 of each applicable table (as if MTEM had not

exercised its Co-Development Option), and Takeda shall continue to be obligated to pay royalties at the higher rate set forth in Column 2 of the table in Section 6.4 until the amount of royalties paid to MTEM by Takeda equals, in the aggregate, the MTEM Co-Development Cost Amount (the "**Transition Point**"), after which, Takeda shall pay royalties at the lower rate set forth in Column 1 of the table in Section 6.4.

6.5.3 Without limiting Takeda's rights to defer payment of a portion of Column 2 milestones and royalties in the event that MTEM has not paid to Takeda its Co-Development Costs it owes as set forth above in this Article VI or Takeda's rights to adjust milestones and royalties as set forth in Section 6.5.2, then in the case of any delay in payment of MTEM's Co-Development Costs (other than those disputed in good faith by MTEM in writing) for more than [***] then Takeda may elect to terminate the Co-Development Period by written notice to MTEM and the Co-Development Period shall terminate if MTEM has not made such payment within [***] after receipt of such notice, such termination of the Co-Development Period effective at the end of such cure period. Upon effectiveness of such termination, Takeda's obligation to pay the higher milestone amounts and royalty rates (set forth in the applicable Column 2 of each table in this Article VI) shall cease, and Takeda shall thereafter be obligated to pay the lower (Column 1) amounts and rates.

6.5.4 **Reporting and Payment Mechanics.** Unless otherwise decided by the Joint Finance Working Group, for any period of C o-Development, until the end of the Co-Development Period, the Parties shall exchange an estimate of their respective Co-Development Costs for each Calendar Quarter within the last week of the Calendar Quarter and shall provide each other with a forecast of its anticipated Co-Development Costs for the upcoming Calendar Quarter. For each Calendar Quarter, the Parties will report to one another their respective Co-Development Costs within [***] of the end of each Calendar Quarter and will then reconcile the Co-Development Costs so each Party shares its portion of the total Co-Development Costs. The reporting will include a summary of internal costs (based on the FTE Rate) and external costs included within the Co-Development Costs, in the same format as the Early Stage Development Budget. The applicable Party shall issue a corresponding invoice by the [***] of each Calendar Quarter for the prior Calendar Quarter and any payment shall be due in [***] from receipt of such invoice.

6.5.5 **Disputes.** Any dispute as to whether certain costs qualify as Co-Development Costs shall be resolved pursuant to the JSC or Section 12.3.

6.5.6 **No Double Counting**. In no circumstances shall Development Costs incurred by a Party's Affiliate, licensee or Sublicensee be double counted as Co-Development Costs, and in no circumstances shall any mark-ups among such Party and its applicable Affiliates, licensees or Sublicensees be included as a Co-Development Cost.

Section 6.6 **Royalty Payment Terms**. Royalties shown to have accrued by each Royalty Report provided for under this Article VI shall be due on the date such Royalty Report is due pursuant to Section 6.11.2.

Section 6.7 **Payment Method**. All payments by Takeda to MTEM, or payments by MTEM to Takeda in the case of Co-Development, under this Agreement, shall be paid in U.S. Dollars, and all such payments shall be made by bank wire transfer in immediately available funds to the bank account designated by MTEM in writing; provided, that such account

information is provided to Takeda at least [***] prior to any such payment becoming due hereunder.

Section 6.8 **Late Payments**. If a Party does not receive payment of any sum due to it on or before the due date therefor, simple interest shall thereafter accrue on the sum due to such Party from the due date until the date of payment at a per-annum rate of [***] over the then-current LIBOR prime rate reported in The Wall Street Journal or the maximum rate allowable by Applicable Law, whichever is lower.

Section 6.9 **Exchange Control**. If at any time legal restrictions prevent the prompt remittance of part or all royalties with respect to any country in the Territory where any Licensed Product is sold, payment shall be made through such lawful means or method as the Parties reasonably shall determine.

Section 6.10 **Taxes; Withholding Taxes** . The amounts payable pursuant to this Agreement ("**Payments**") shall not be reduced on account of any Taxes unless required by Applicable Law. Takeda shall deduct and withhold from the Payments any Taxes that it is required by Applicable Law to deduct or withhold. Notwithstanding the foregoing, if MTEM is entitled under any applicable tax treaty to a reduction of rate of, or the elimination of, or recovery of, applicable withholding tax, it may deliver to Takeda or the appropriate governmental authority the prescribed forms necessary to reduce the applicable rate of withholding or to relieve Takeda of its obligation to withhold tax. In such case Takeda shall apply the reduced rate of withholding, or not withhold, as the case may be, provided that Takeda is in receipt of evidence, in a form reasonably satisfactory to Takeda, for example MTEM's delivery of all applicable documentation at least [***] prior to the time that the Payments are due. If, in accordance with the foregoing, Takeda withholds any amount, it shall pay to MTEM the balance when due, make timely payment to the proper taxing authority of the withheld amount, and send MTEM proof of such payment within [***] following that payment.

MTEM shall cooperate with Takeda (at Takeda's expense) in seeking any tax exemption or credits that may be available to Takeda with respect to the Licensed Products or any CD38 SLT-A Fusion Proteins, including the tax credit available under section 45C of the Internal Revenue Code by reason of Takeda's research and development expenditures contributing to any Licensed Product being granted orphan drug status by the FDA.

Section 6.11 **Royalty Reports; Exchange Rates**.

6.11.1 For so long as any Royalty Term or Co-Development Royalty Term, as applicable, remains in effect, Takeda shall, with respect to each Calendar Quarter (or portion thereof), provide a written report showing, on a consolidated aggregated basis in reasonable detail (a) the Net Sales of Licensed Products sold by Takeda, its Affiliates and its Sublicensees in the Territory during the corresponding Calendar Quarter on which royalties are due (b) the royalties payable in U.S. Dollars, if any, which shall have accrued hereunder based upon such Net Sales of Licensed Products, (c) the withholding taxes, if any, required by law to be deducted in respect of such royalties, (d) the dates of the First Commercial Sale of each Licensed Product in each country in the Territory for which royalties are due hereunder, if it has occurred during the corresponding Calendar Quarter, and (e) the exchange rates (as determined pursuant to Section 6.11.3 herein) used in determining the royalty amount expressed in U.S. Dollars (each, a "**Royalty Report**").

6.11.2 Royalty Reports shall be due within [***] following the end of the Calendar Quarter to which such Royalty Report relates. Takeda shall keep complete and accurate records in sufficient detail to properly reflect all Net Sales and to enable the royalties payable hereunder to be determined. For clarity, "sufficient detail" shall not require Takeda to keep any records thereof beyond records that it maintains in the ordinary course and shall not be required to divulge the proprietary information of any Third Party.

6.11.3 With respect to sales of Licensed Products invoiced in U.S. Dollars, Net Sales and royalties payable shall be expressed in U.S. Dollars. With respect to sales of Licensed Products invoiced in a currency other than U.S. Dollars, Net Sales and royalties payable shall be expressed in the currency of the invoice issued by the Party making the sale together with the U.S. Dollars equivalent of the royalty due, calculated using the average quarter-end rate of exchange for a given Calendar Quarter published in the East Coast Edition of the Wall Street Journal during the applicable Calendar Quarter.

Section 6.12 **Audits**.

6.12.1 Upon the written request of a Party and with at least [***] prior written notice, but not [***] the other Party shall permit an independent certified public accounting firm of internationally recognized standing, selected by such first Party and reasonably acceptable to such other Party, at such first Party's sole cost and expense (except as set forth in this Section 6.12), to have access during normal business hours to such of the records of such other Party as required to be maintained under this Agreement to verify: (a) the accuracy of the Royalty Reports due hereunder, in the case of MTEM, (b) the accuracy of the Supply Price, in the case of Takeda, or (c) during the period the Parties are sharing Development Costs pursuant to Section 6.5, the accuracy of and support for the Development Costs claimed by the other Party. Such accountants may audit records relating to Royalty Reports, the Supply Price or Development Costs, as applicable, made for any year ending not more than [***] prior to the date of such request. The accounting firm shall disclose to the Party requesting such audit its findings as to whether the Royalty Reports, the Supply Price or the Development Costs, as applicable, were correct or not, together with the specific details concerning any discrepancies, and such information shall be shared at the same time with the other Party. No other information obtained by such accountants shall be shared with the Party requesting such audit.

6.12.2 If such accounting firm concludes that any royalties were owed but not paid to MTEM, Takeda shall pay the additional royalties within [***] following the date MTEM delivers to Takeda such accounting firm's written report so concluding, together with the interest payment required by Section 6.8. If such accounting firm concludes that the Supply Price charged by MTEM was inconsistent with the definition therefor and such inconsistency resulted in an overpayment by Takeda hereunder, MTEM shall reimburse Takeda such overpayment within [***] following the date Takeda delivers to MTEM such accounting firm's written report so concluding, together with the interest payment required by Section 6.8. The fees charged by such accounting firm shall be paid by the Party requesting such audit; provided, that if the audit discloses that (a) the royalties payable by Takeda for the audited period are more than [***] of the royalties actually paid for such period, then Takeda shall pay the reasonable fees and expenses charged by such accounting firm, (b) the Supply Price payable by Takeda for the audited period is less than [***] of the Supply Price actually paid for such period, then MTEM shall pay the reasonable fees and expenses charged by such accounting firm, or (c) if, during the period Development Costs are being shared by the Parties pursuant to Section 6.5, the share of

the other Party's Development Costs payable by such Party pursuant to Section 6.5 is less than [***] of the amounts actual paid by such Party for such Development Costs, then the audited Party shall pay the reasonable fees and expenses charged by such accounting firm. If such accounting firm concludes that the royalties paid were more than what was owed during such period, MTEM shall refund the overpayments within [***] following the date MTEM receives such accounting firm's written report so concluding.

Section 6.13 **Confidential Financial Information**. The Parties shall treat all financial information subject to review under this Article VI or under any sublicense agreement as Confidential Information of such Party as set forth in Article VII, and shall cause its accounting firm to retain all such financial information in confidence under terms substantially similar to those set forth in Article VII and with respect to each inspection, the independent accounting firm shall be obliged to execute for each Party's benefit a reasonable confidentiality agreement prior to commencing any such inspection.

ARTICLE VII
CONFIDENTIALITY

Section 7.1 **Non-Disclosure Obligations**. Except as otherwise provided in this Article VII during the Term and for a period of [***] thereafter, each Party and their respective Affiliates shall maintain in confidence, and use only for purposes as expressly authorized and contemplated by this Agreement, all Confidential Information. "**Confidential Information**" means all confidential or proprietary information (including information relating to such Party's research programs, development, marketing and other business practices and finances), data, documents or other materials supplied by the other Party or their respective Affiliates under this Agreement, including such information that is marked or otherwise identified as "Confidential"; provided that, notwithstanding anything to the contrary, Confidential Information constituting [***] or relating exclusively to one or more [***] or [***] ("**Product Information**") shall be considered the Confidential Information of both MTEM and Takeda (except for any [***] which shall in all cases constitute the Confidential Information of Takeda only (and MTEM shall be considered the receiving Party with respect thereto regardless of which Party generated such [***])) and the terms of this Agreement shall be Confidential Information of both Parties (and both Parties shall be deemed the receiving Party with respect thereto). Without limiting the foregoing, each Party shall use at least the same standard of care as it uses to protect its own Confidential Information to ensure that its and its Affiliates' employees, agents, consultants, clinical investigators and any sublicensees or subcontractors only make use of the other Party's Confidential Information for purposes as expressly authorized and contemplated by this Agreement and do not disclose or make any unauthorized use of such Confidential Information.

Section 7.2 **Permitted Disclosures**.

7.2.1 Notwithstanding the foregoing, but subject to the last sentence of this Section 7.2, the provisions of Section 7.1 shall not apply to information, documents or materials that the receiving Party can conclusively establish:

(a) have become published or otherwise entered the public domain or become generally available to the public other than by breach of this Agreement by the receiving Party or its Affiliates;

(b) are permitted to be disclosed by prior consent of the other Party;

(c) have become known to the receiving Party by a Third Party, provided such Confidential Information was not obtained by such Third Party directly or indirectly from the disclosing Party on a confidential basis;

(d) prior to disclosure under this Agreement or the Multi-Target Agreement, was already in the possession of the receiving Party, its Affiliates or Sublicensees; or

(e) have been independently developed by or for the receiving Party without reference to the disclosing Party's Confidential Information (hereunder or under the Multi-Target Agreement, as defined therein);

provided that the exceptions described in clauses (d) and (e) of this Section 7.2.1 shall not apply with respect to Confidential Information constituting (i) in the case of MTEM as the disclosing Party, MTEM Program Know-How that was conceived, discovered, developed or otherwise made by Takeda, (ii) in the case of Takeda as the disclosing Party, Takeda Program Know-How conceived, discovered, developed or otherwise made by MTEM, (iii) Know-How included in the Joint Background IP, (iv) Product Program Know-How or (v) Product Information.

7.2.2 Each Party may also disclose Confidential Information as set forth below in this Section 7.2.2. Notwithstanding the disclosures permitted under Section 7.2.2, any Confidential Information so disclosed shall remain subject to the confidentiality obligations of Section 7.1, unless and until any exceptions described in Section 7.2.1 shall apply. Either Party may disclose Confidential Information to the extent such disclosure is made:

(a) in response to a valid order of a court of competent jurisdiction or other Governmental Authority or Regulatory Authority or, if in the reasonable opinion of the receiving Party's legal counsel, such disclosure is otherwise required by Applicable Law, including by reason of filing with securities regulators (including the rules and regulations of any stock exchange or trading market on which the disclosing Party's (or its parent's) securities are traded); provided, that the receiving Party shall first have given notice to the disclosing Party and given the disclosing Party a reasonable opportunity to quash such order or to obtain a protective order or confidential treatment requiring that the Confidential Information and documents that are the subject of such order or requirement be held in confidence by such court or agency or, if disclosed, be used only for the purposes for which the order was issued; provided, further, that the Confidential Information disclosed in response to such court or governmental order or Applicable Law shall be limited to that information which is legally required to be disclosed in response to such court or governmental order or Applicable Law (including the rules and regulations of any stock exchange or trading market on which the disclosing Party's (or its parent's) securities are traded);

(b) in the case of the Party controlling prosecution of the applicable Program Patent Rights, solely to the extent reasonably necessary to include in a patent application claiming Program Patent Rights; provided, that the Party filing the patent application shall provide at least [***] prior written notice of such disclosure to the other Party, reasonably consider the other Party's comments in good faith and take reasonable and lawful actions to avoid or minimize the degree of disclosure;

(c) by Takeda, to a Regulatory Authority, as reasonably required or useful in connection with any filing, submission or communication with respect to any CD38

SLT-A Fusion Protein or Licensed Product; provided, that reasonable measures shall be taken to assure confidential treatment of such information, to the extent such protection is available;

(d) to a Sublicensee or Distributor as permitted hereunder; provided, that such Sublicensee or Distributor is then subject to obligations of confidentiality and limitations on use of such Confidential Information substantially similar to those contained herein and Takeda otherwise complies with Section 3.4;

(e) by Takeda, its Affiliates or its or their Sublicensees (or "Sublicensee" as defined in the Multi-Target Agreement) to an actual or potential Third Party Manufacturing, Development or Commercialization collaborator, Distributor, contractor or partner with respect to any Licensed Product or any CD38 SLT-A Fusion Protein contained therein or any Component thereof or otherwise as may be necessary or useful in connection with its exercise of rights or performance of obligations hereunder (including in connection with any litigation with respect thereto) or under the Multi-Target Agreement; provided, that such Third Party recipient is, if practicable, then subject to obligations of confidentiality and limitations on use of such Confidential Information substantially similar to those contained herein;

(f) by Takeda or to an actual or potential investor in or acquirer of the business to which this Agreement or the Multi-Target Agreement relates; provided, that (i) such Third Party recipient is then subject to obligations of confidentiality and limitations on use of such Confidential Information substantially similar to those contained herein and (ii) Takeda shall provide at least [***] prior notice of (including a copy of) any such proposed disclosure to MTEM and shall not make any such disclosure without first obtaining MTEM's prior written consent (which consent shall not be unreasonably withheld, conditioned or delayed) with respect thereto in each instance (it being understood that if consent with respect to a specific disclosure is given by MTEM with respect to a particular type of audience of Third Parties (*e.g.*, investors not affiliated with a pharmaceutical company), Takeda may subsequently make such specific disclosure to another member of such audience consistent with such consent without obtaining specific consent from MTEM in such instance); and

(g) by MTEM to actual or potential strategic partners, investors or acquirers; provided, that such disclosures shall be limited to the terms of this Agreement and pre-clinical data and pre-clinical results arising out of the Early Stage Program and shall be limited disclosures that do not divulge or otherwise make available the identity of any CD38 SLT-A Fusion Protein or the targeting moiety contained therein; provided, further, that (i) such Third Party recipient is then subject to obligations of confidentiality and limitations on use of such Confidential Information substantially similar to those contained herein, and (ii) MTEM shall provide at least [***] prior notice of (including a copy of) any such proposed disclosure to Takeda and shall not make any such disclosure without first obtaining Takeda's prior written consent (which consent shall not be unreasonably withheld, conditioned or delayed) with respect thereto in each instance (it being understood that if consent with respect to a specific disclosure is given by Takeda with respect to a particular type of audience of Third Parties (*e.g.* , investors not affiliated with a pharmaceutical company), MTEM may subsequently make such specific disclosure to another member of such audience consistent with such consent without obtaining specific consent from Takeda in such instance).

7.2.3 **Press Releases and Other Disclosures to Third Parties**. Neither MTEM (or its Affiliates) nor Takeda (or its Affiliates) will, without the prior consent of the

other, issue any press release or make any other public announcement or furnish any statement to any Person (other than either Parties' respective Affiliates) concerning the existence of this Agreement, its terms and the transactions contemplated hereby, except for (a) the initial press release, which will be mutually agreed upon by the Parties as soon as practicable following the Effective Date, (b) disclosures made in compliance with Section 7.1, Section 7.2 and Section 7.3, (c) disclosures made to attorneys, consultants, and accountants retained to represent the Parties in connection with the negotiation and consummation of the transactions contemplated hereby, and (d) press releases by Takeda, in its sole discretion, regarding Takeda's activities under this Agreement with respect to a Licensed Product. In addition, if so required, first approval by a Party of the contents of a press release or public disclosure shall constitute permission of a Party to use such same contents subsequently, without submission of the press release or public disclosure to a Party for approval.

Section 7.3 **Use of Name**. Except as expressly provided herein, neither Party shall mention or otherwise use the name, logo or trademark of the other Party or any of its Affiliates or any of its or their Sublicensees (or any abbreviation or adaptation thereof) (including any Product Trademark) in any publication, press release, marketing and promotional material or other form of publicity without the prior written consent of such other Party. The restrictions imposed by this Section 7.3 shall not prohibit (a) Takeda from making any disclosure identifying MTEM to the extent required in connection with its exercise of its rights or obligations under this Agreement or the Multi-Target Agreement or (b) either Party from making any disclosure identifying the other Party that is required by Applicable Law or the rules of a stock exchange on which the securities of the disclosing Party are listed (or to which an application for listing has been submitted).

Section 7.4 **Publications** Neither Party may publish, present or announce results, either orally or in writing (a "**Publication**"), of (a) the Early Stage Program without written consent of the other Party or (b) the Post Phase Ia Program without complying with the provisions of this Section 7.4; provided that, without limiting what is below, MTEM shall not make any such Publication without Takeda's prior written consent. A Party wishing to make such a Publication will provide the other Party with a copy of the proposed Publication The other Party shall have [***] from receipt of such a proposed Publication to provide comments or proposed changes to the publishing Party. The publishing Party shall (i) in the case of Publications of results of the Early Stage Program, take into account the comments or proposed changes made by the other Party on any Publication, shall provide a final review of the Publication and shall agree to designate employees or others acting on behalf of the other Party as co-authors on any Publication describing results to which such persons have contributed in accordance with standards applicable to authorship of scientific publications, or (ii) in the case of Publications of results from the Post Phase Ia Program, consider the comments or proposed changes made by the other Party. If the other Party reasonably determines that the Publication would entail the public disclosure of such Party's Confidential Information or of a patentable invention upon which a patent application should be filed prior to any such disclosure, submission of the concerned Publication to Third Parties shall be delayed for such period as may be reasonably necessary for deleting any such Confidential Information of the other Party (if the other Party has requested deletion thereof from the proposed Publication), or the drafting and filing of a patent application claiming such invention, provided such additional period shall not exceed [***] from the date the publishing Party first provided the proposed Publication to the other Party. Notwithstanding anything to the contrary in the foregoing, with respect to any Publications by investigators or other Third Party collaborators of Takeda, such materials shall

be subject to review under this Section 7.4 only to the extent that Takeda has the right and ability (after using commercially reasonable efforts) to do so.

Section 7.5 **Return of Confidential Information** . Upon the effective date of the termination of this Agreement for any reason, with respect to Confidential Information to which such non-requesting Party does not retain rights under the surviving provisions of this Agreement or under the Multi-Target Agreement, each Party shall, upon and in accordance with the other Party's request in writing, either: (a) promptly destroy all copies of such Confidential Information in the possession or control of the non-requesting Party and confirm such destruction in writing to the requesting Party; or (b) promptly deliver to the requesting Party, at the non-requesting Party's sole cost and expense, all copies of such Confidential Information in the possession or control of the non-requesting Party. Notwithstanding the foregoing, the non-requesting Party shall be permitted to retain such Confidential Information (i) to the extent necessary or useful for purposes of performing any continuing obligations or exercising any ongoing rights hereunder and, in any event, a single copy of such Confidential Information for archival purposes and (ii) any computer records or files containing such Confidential Information that have been created solely by such non-requesting Party's automatic archiving and back-up procedures, to the extent created and retained in a manner consistent with such non-requesting Party's standard archiving and back-up procedures, but not for any other uses or purposes. All Confidential Information shall continue to be subject to the terms of this Agreement for the period set forth in Section 7.1. In addition, in the case of any expiration or termination of this Agreement, MTEM shall promptly deliver to Takeda at Takeda's sole cost and expense any and all materials within the Takeda Program IP, including any master cell banks, working cell banks and fusion proteins that contain or encode any targeting moiety within the Takeda Program Know-How or Takeda Background Know-How.

ARTICLE VIII
INTELLECTUAL PROPERTY OWNERSHIP

Section 8.1 **Disclosure of Inventions**. Each Party shall promptly disclose to the other Party any Program IP (except that Takeda shall have no obligation to disclose any Takeda Targeting Moiety IP to MTEM).

Section 8.2 **Intellectual Property**.

8.2.1 **Background IP**. As between the Parties, subject to the licenses and rights of reference granted in Article III, each Party shall own and retain all right, title and interest in and to any and all Background IP solely owned by such Party and each Party shall own an equal and undivided interest in and to any Joint Background IP except as follows: MTEM hereby assigns and transfers to Takeda all of its right, title and interest in and to any and all Project Technology and Project IP (as defined under the 2016 Research Collaboration Agreement and under the IPA) that relates solely to (a) [***] or (b) [***] . Takeda hereby assigns and transfers to MTEM all of its right, title and interest in and to any and all Project Technology and Project IP (as defined under the 2016 Research Collaboration Agreement and under the IPA) that relates solely to [***]. Subject to the licenses granted hereunder and under the Multi-Target Agreement (if applicable), (i) Takeda may use the Joint Background IP for any and all purposes and (ii) if MTEM exercises its Co-Development Option and does not provide a Co-Development Termination Notice, MTEM may use the Joint Background IP for any purposes (if any) outside the scope of the Exclusive License.

8.2.2 Takeda Program IP. As between the Parties, subject to the licenses granted in Article III, Takeda shall own and, subject to the licenses granted in Article III, retain all right, title and interest in and to any and all Takeda Program IP. MTEM shall, and does hereby, assign to Takeda and will cause each of its officers, directors, employees, Affiliates, subcontractors and agents to assign to Takeda all such right, title and interest in and to any Takeda Program IP, without additional compensation , as is necessary to fully effect the sole ownership provided for in the first sentence of this Section 8.2.2.

8.2.3 MTEM Program IP. As between the Parties, subject to Section 3.9 and the licenses and rights of reference granted in Article III, MTEM shall own and retain all right, title and interest in and to any and all MTEM Program IP. Takeda shall, and does hereby, assign to MTEM and will cause each of its officers, directors, employees and Affiliates, to assign to MTEM all such right, title and interest in and to any MTEM Program IP, without additional compensation, as is necessary to fully effect the sole ownership provided for in the first sentence of this Section 8.2.3.

8.2.4 Product Program IP. As between the Parties, and subject to the licenses and rights of reference granted in Article III, [***] own and retain an equal, undivided interest in and to any Product Program IP. Subject to the licenses granted hereunder and under the Multi-Target Agreement if applicable, [***] may use the Product Program IP for any purpose without consent or accounting by [***] except (a) in the case of [***], for purposes within the scope of the [***] and (b) in the case of [***], subject to the terms of this Agreement within the scope of the [***].

8.2.5 Other Program IP. As between the Parties, subject to the licenses and rights of reference granted in Article III, each Party shall own and retain all right, title and interest in and to any and all Other Program IP (other than Joint Other Program IP) that is conceived, discovered, developed or otherwise made solely by or on behalf of such Party (or its Affiliates or its or their sublicensees or (sub)contractors), whether or not patented or patentable and any and all Patent Rights and other intellectual property rights with respect thereto. As between the Parties, subject to the licenses and rights of reference granted in Article III, the Parties shall each own and retain an equal, undivided interest in and to any and all Joint Other Program IP. Subject to the licenses and rights of reference granted in Article III and, in the case of MTEM, its exclusivity obligations hereunder, each Party (and its Affiliates) shall have the right to Exploit the Joint Other Program IP without a duty of seeking consent of or accounting to the other Party (and to the extent such consent is required by Applicable Law, such consent is hereby granted) (except that such right shall be subject to any restrictions or exclusive licenses in this Agreement or any other written agreement between the Parties, including the Multi-Target Agreement); provided, that neither Party shall have the right to disclose (except as provided in Section 7.2) or license (except as may be permitted under Article III) any Joint Other Program IP to any Third Party without the consent of the other Party.

8.2.6 United States Law. The determination of whether Know-How, Improvements and inventions are conceived, discovered, developed or otherwise made by a Party for the purpose of allocating proprietary rights (including Patent Rights, copyright or other intellectual property rights) therein, shall, for purposes of this Agreement, be made in accordance with Applicable Law in the United States as such law exists as of the Effective Date irrespective of where or when such conception, discovery, development or making occurs. Each Party shall, and does hereby, assign, and shall cause its Affiliates and its and their sublicensees to so assign,

to the other Party, without additional compensation, such right, title and interest in and to any Know-How, Improvements and other inventions as well as any intellectual property rights with respect thereto, as is necessary to fully effect, as applicable, the sole or joint ownership specified in this Article VIII.

Section 8.3 Patent Prosecution and Maintenance.

8.3.1 MTEM Prosecution and Maintenance. MTEM shall have the first right and authority, but not the obligation, to prepare, file, prosecute and maintain the MTEM Background Patent Rights, the MTEM Program Patent Rights and any Other Program Patent Rights solely owned by MTEM on a worldwide basis and to be responsible for any related pre-grant and post-grant administrative proceedings (including interference, re-issuance, re-examination and opposition proceedings), in each case, at MTEM's sole cost and expense. MTEM shall keep Takeda reasonably informed and provide reasonable opportunity for Takeda to comment with respect to all material steps with regard to the preparation, filing, prosecution and maintenance of such Patent Rights (including any patent administrative proceeding), and shall reasonably consider such comments in good faith. If MTEM decides not to file for or continue prosecuting any such Patent Rights, then MTEM shall so notify Takeda in writing (which written notice shall be at least [***] before any relevant deadline after considering any extension for such continued prosecution of those Patent Rights). Thereafter, Takeda shall have the right, but not the obligation, to engage in the activities set forth in this Section 8.3.1 with respect to such Patent Rights, as applicable, at Takeda's sole expense.

8.3.2 Takeda Prosecution and Maintenance.

(a) Takeda (or its Affiliate or Sublicensee) shall have the sole right and authority, but not the obligation, to prepare, file, prosecute and maintain the Takeda Background Patent Rights, the Takeda Program Patent Rights and the Other Program Patent Rights solely owned by Takeda on a worldwide basis, and to be responsible for any pre-grant and post-grant patent administrative proceedings, as well as Extensions. Takeda shall be responsible for all costs and expenses in connection with the preparation, filing, prosecution and maintenance of any such Patent Rights.

(b) At Takeda's election in its sole discretion, with respect to any Takeda Program Patent Right or Takeda Background Patent Right related to a Takeda Targeting Moiety, Takeda may afford to MTEM joint ownership in such Patent Right by written notice to MTEM. In such a case, (i) Takeda and MTEM shall each have an equal undivided ownership interest in such Patent Right and (ii) MTEM shall and hereby does grant to Takeda an exclusive, royalty-free, irrevocable, perpetual license under such Patent Rights for all purposes. For clarity, Takeda shall retain all rights under this Article VIII with respect to such Patent Right as a Takeda Program Patent Right or Takeda Background Patent Right notwithstanding such joint ownership, including with respect to prosecution and maintenance, including Extensions, enforcement and defense, and MTEM shall cooperate with respect thereto.

8.3.3 Prosecution and Maintenance of Jointly Owned IP. The Parties shall cooperate and [***] all demonstrated reasonable costs and expenses in connection with the preparation, filing, prosecution and maintenance of Patent Rights in the Joint Background IP, [***] and Joint Other Program Patent Rights, using mutually acceptable counsel, during the periods when the Parties are engaged in Co-Development, including during the Co-Development

Period after exercise by MTEM of the Co-Development Option, with decision making authority delegated to the Joint Patent Committee and with Takeda having [***] only with respect to claims in such Patent Rights directed[***] Except during the Co-Development Period, Takeda shall control the prosecution and maintenance of such Patent Right s during the Post Phase Ia Program and thereafter, subject to the cooperation provisions in Section 8.3.5.

8.3.4 **Step-In Rights**. If Takeda decides in any country not to file, prosecute or, maintain a Patent Rights in the Joint Background IP, a [***] or Joint Other Program Patent Right, or intends to allow such a Patent Right to lapse or become abandoned without having first filed a substitute Patent Right, Takeda shall notify and consult with MTEM of such decision or intention at least [***] prior to the date upon which the subject matter of such Patent Right shall become unpatentable or such Patent Right shall lapse or become irrevocably abandoned, and MTEM shall thereupon have the right (but not the obligation) to assume the prosecution and maintenance thereof at its own expense with counsel of its own choice, subject, at all times, to Takeda's licenses hereunder and coordination through the Joint Patent Committee. If MTEM later decides not to file, prosecute or maintain such Patent Right, it shall notify Takeda within the [***] period specified above in this Section 8.3.4, *mutatis, mutandis*, and Takeda shall thereupon have the right, but not the obligation, to assume the prosecution and take the prosecution and maintenance thereof at its own expense with counsel of its own choice without any further obligation to MTEM.

8.3.5 **Cooperation**. The Parties shall at all times fully cooperate with each other in order to reasonably implement the foregoing provisions of this Section 8.3. Such cooperation may include each Party's execution of necessary legal documents, coordinating filing or prosecution of applications to avoid potential issues during prosecution (including novelty, non-obviousness, written description, enablement, estoppel and double patenting), and the assistance of each Party's relevant personnel and the transfer of the applicable patent files to the prosecuting Party. In the case that any proposed filing by Takeda with respect to any Patent Rights covered by this Section 8.3 discloses [***] disclosed or claimed by any Patent Rights as to which MTEM has the right to prosecute under this Section 8.3, then the Parties will use good faith efforts to coordinate filings with respect to such species Patent Rights so that such filings by Takeda are made no [***] that filings by MTEM with respect to the corresponding [***] Patent Rights filed by MTEM (provided, however, that the foregoing coordination shall (a) not unreasonably delay Takeda from making any filing with respect to any such Patent Rights and (b) in any event, not delay Takeda from making any such filing by more than [***] after notice by Takeda to MTEM that Takeda is ready to make such proposed filing, which notice shall include a copy of such proposed filing). Without limitation of the foregoing, the Parties shall use good faith, reasonable efforts to avoid creating potential issues in prosecution of the patent applications covered by this Section 8.3. Except as otherwise expressly authorized in this Agreement, Takeda shall not disclose or claim in any patent application, patent or publication any Confidential Information of MTEM without first obtaining MTEM's prior written consent. Except as otherwise expressly authorized in this Agreement, MTEM shall not disclose or claim in any patent application, patent or publication any Confidential Information of Takeda without first obtaining Takeda's prior written consent.

8.3.6 **Patent Term Extension and Supplementary Protection Certificate**. As between the Parties, Takeda or its Affiliate or Sublicensee shall at all times have the sole right to make final decisions regarding, and to apply for, patent term extensions based on regulatory approval of Licensed Products in the Territory, including the United States with respect to

extensions pursuant to 35 U.S.C. § 156 et. seq. and in other jurisdictions pursuant to supplementary protection certificates, and in all jurisdictions with respect to any other extensions that are now or become available in the future, wherever applicable (collectively, the "**Extensions**"), including for the Patent Rights in the Joint Background IP or any [***] but excluding the MTEM Background Patent Rights except as specified below. MTEM shall provide prompt and reasonable comments and, as requested by Takeda, assistance with respect thereto as is required under any Applicable Law to obtain such Extension, and shall cooperate in good faith in making decisions regarding, and to apply for, such Extensions as they relate to any of the foregoing Patent Rights. As between the Parties, MTEM shall have the sole right to make final decisions regarding, and to apply for, Extensions for the MTEM Background Patent Rights, the MTEM SLT-A Program Patent Rights and the Other Program IP solely owned by MTEM, but for any such Extensions as they relate to MTEM Background Patent Rights, Takeda may direct MTEM to fill for an Extension if no Extension is available for any Patent Rights in the Joint Background IP or Program Patent Rights with respect to Licensed Products.

8.3.7 **UPC Opt-Out and Opt-In.** MTEM shall, as soon as reasonably practicable on request by Takeda (a) lodge an application with the Registry of the Unified Patent Court in the manner specified by Rule 5 of the Rules of Procedure of the Unitary Patent Court requesting the Opt-Out or Opt-In, as specified by Takeda, of any MTEM Background Patent Right, Patent Right in the Joint Background IP or any Program Patent Right owned solely or jointly by MTEM (or if elected by Takeda, Takeda may lodge such an obligation in the case of any Patent Right in the Joint Background IP or Program Patent Right owned jointly by Takeda) , (b) pay the prescribed fee and make such submissions, and (c) take such other actions as may be necessary or useful to secure the Opt-Out or Opt-In, as applicable, of such Patent Right including making any declarations required by Rule 5(3)(e) of the Rules of Procedure of the Unitary Patent Court. Costs of the Parties attributable to the foregoing will be agreed upon by the Parties prior to lodging an application.

8.3.8 **Common Ownership Under Joint Research Agreements**. Notwithstanding anything to the contrary in this Article VIII, Takeda shall have the first right to make an election under 35 U.S.C. § 102(c) when exercising its rights under this Article VIII without the prior written consent of MTEM. If Takeda fails to make such an election within [***] following the date on which the opportunity to make such election arose, then MTEM shall have the right and option to do so at its expense. With respect to any such permitted election, the Parties shall coordinate their activities with respect to any submissions, filings or other activities in support thereof. The Parties acknowledge and agree that this Agreement is a "joint research agreement" as defined in 35 U.S.C. § 100(h).

8.3.9 **Joint Patent Committee**.

(a) **Formation and Composition**. The Parties will establish a joint patent committee (the "**Joint Patent Committee**") composed of at least [***] of each of Takeda and MTEM, in each case who is a registered patent attorney or patent agent with relevant experience within the field of pharmaceutical patents. A Party may at any time, by written notice to the other Party's representative on the Joint Patent Committee, change its representative on the Joint Patent Committee or elect to be represented by a delegate at a meeting of the Joint Patent Committee. The Joint Patent Committee will be chaired by the Takeda representative. The Parties may allow additional employees to attend meetings of the Joint Patent Committee subject to the confidentiality provisions of Article VII.

(b) Functions and Authority. The Joint Patent Committee will be responsible for only the following:

i. Coordinating with the Parties in accordance with Section 8.3.5 to reasonably avoid creating potential issues in prosecution of the patent applications claiming each Party's respective Patent Rights;

ii. Subject to this Section 8.3, discussing patent prosecution strategy relating to prosecution of Patent Rights in the Joint Background IP, MTEM Background Patent Rights, MTEM Program Patent Rights, Product Program Patent Rights and Other Program Patent Rights (other than those solely owned by Takeda) under this Article VIII, and status updates with respect to such Patent Rights; and

iii. Such other matters as the Parties may mutually agree in writing.

(c) Meetings. During the Term until its disbandment, the Joint Patent Committee will meet in person or by teleconference or videoconference when and as reasonably requested by a representative to the Joint Patent Committee.

(d) Decisions. Each Party shall have [***] on the Joint Patent Committee. The Joint Patent Committee will seek to make all decisions by consensus. In the event that the Joint Patent Committee cannot reach consensus on an issue, then the Party that has the right to control the matter under this Article VIII shall have sole and final decision making authority relating to the matter and shall seek the broadest protection practicable for the Parties under the applicable circumstances. If the matter at issue regards any Joint Other Program IP, Product Program IP or Joint Background IP, and agreement cannot be reached, then [***] additional senior executive members, one from each Party, will be asked to assist the Joint Patent Committee in its decision making process in accordance with this clause (d) by consensus.

(e) Minutes and Reports. The Joint Patent Committee will draft, distribute and maintain accurate minutes of its meetings, including with respect to all proposed decisions and recommended actions or decisions taken, in accordance with policies to be agreed by the Joint Patent Committee.

(f) Duration. Unless earlier terminated by mutual written consent of the Parties, the Joint Patent Committee will be in existence until the expiration of the last to expire of the following: (i) the Program Patent Rights, (ii) Patent Right in the Joint Background IP and (iii) the Takeda Targeting Moiety Patent Rights but only in the case of clause (iii) for as long as MTEM is participating in Co-Development, and (iv) the MTEM Background Patent Rights.

Section 8.4 Enforcement of Patent Rights.

8.4.1 Notification of Infringement. In the event that a Party becomes aware of an infringement or misappropriation of the intellectual property owned by or licensed to the other Party hereunder, which infringement or misappropriation relates to a CD38 SLT-A Fusion Protein or Licensed Product, it shall promptly notify the other Party and provide such other Party with all details of such infringement or misappropriation of which it is aware (each, an "**Infringement Notice**").

8.4.2 MTEM shall have the first right, at its sole cost and expense, but not the obligation, to determine the appropriate course of action to enforce the MTEM Background Patent Rights, MTEM Program Patent Rights, and Other Program Patent Rights solely owned by MTEM, or otherwise abate the infringement thereof, to take (or refrain from taking) appropriate action to enforce such Patent Rights, to control any litigation or other enforcement action and to enter into, or permit, the settlement of any such litigation or other enforcement action with respect to such Patent Rights. MTEM shall in good faith consider the interests of Takeda in conducting the foregoing activities. If MTEM fails to enforce any such Patent Rights with respect to the Manufacture, Commercialization or other activity by any Third Party with respect to a product that competes with any Licensed Product within [***] following any Infringement Notice, then Takeda shall have the right and option to do so at its expense. MTEM shall reasonably cooperate with Takeda in any such action at Takeda's expense, to enforce such Patent Rights, including being joined as a party to such action if necessary.

8.4.3 Takeda Enforcement . Takeda shall have the sole right, at its sole expense, but not the obligation, to determine the appropriate course of action to enforce the Takeda Background Patent Rights, the Takeda Program Patent Rights, and Other Program Patent Rights solely owned by Takeda, or otherwise to abate the infringement thereof, to take (or refrain from taking) appropriate action to enforce such Patent Rights, to control any litigation or other enforcement action and to enter into, or permit, the settlement of any such litigation or other enforcement action with respect to any such Patent Rights. MTEM and Takeda shall fully cooperate with each other, at Takeda's expense, in any such action to enforce such Patent Rights, including being joined as a party to such action if necessary, including participating in joint or common interest defenses. MTEM will be informed of any settlement discussions.

8.4.4 Enforcement of Jointly Owned IP. Takeda shall have the sole right, but not the obligation, to determine the appropriate course of action to enforce the Patent Rights in the Joint Background IP, Product Program Patent Rights and Joint Other Program Patent Rights with respect to the Manufacture, Commercialization or other activity by any Third Party with respect to a product that competes with any Licensed Product or with respect to any other infringement of such Patent Rights, including the sole right to control any litigation or other enforcement action and to enter into, or permit, the settlement of any such litigation or other enforcement action with respect to the such Patent Rights. Takeda and MTEM agree to cooperate with each other and to [***]. If there are any recoveries that exceed the Parties' costs and expenses, then the Parties shall share any recoveries based on the percentage that each Party bore with regard to such costs and expenses (i.e., in the case in which both Parties fulfill such cost sharing obligation, then the Parties will [***]. Such cooperation shall include participating in joint or common interest defenses and in any settlement discussions and in being joined as a party to such action if necessary, with Takeda having final decision-making authority when agreement cannot be reached after all dispute resolution mechanisms set forth in Section 12.3.

8.4.5 Recoveries. The Party enforcing under this Article VIII shall bear the costs and expenses of such enforcement. Except as otherwise agreed by the Parties in connection with a cost sharing arrangement, any recovery realized as a result of such enforcement action (whether by way of settlement or otherwise) shall be first allocated to reimburse each Party controlling the enforcement action for its costs and expenses in making such recovery. [***] the Party controlling the enforcement action.

Section 8.5 Separate Representation. The Party not bringing an action with respect to an infringement in the Territory under this Article VIII shall be entitled to separate representation in such matter by counsel of its own choice and at its own expense, but such Party shall at all times cooperate fully with the Party bringing such action; provided that to the extent such separate representation is retained and used in connection with any cooperation provision of this Article VIII, the Party bringing such action shall reimburse such cooperating Party for the cost of such counsel, if required under this Article VIII.

Section 8.6 Trademarks. Takeda shall be responsible for the selection, registration, maintenance and defense of all trademarks for use in connection with the sale or marketing of the Licensed Products (collectively, "**Product Trademarks**") at Takeda's own cost and expense, and Takeda shall own such Product Trademarks. MTEM shall not, and shall not permit its Affiliates to, (a) use in their respective businesses, any trademark that is confusingly similar to, misleading or deceptive with respect to or that dilutes any (or any part) of any Product Trademark and (b) do any act that endangers, destroys, or similarly affects, in any material respect, the value of the goodwill pertaining to any Product Trademark. MTEM shall not, and shall not permit its Affiliates to, attack, dispute or contest the validity of or ownership of any Product Trademark or any registrations issued or issuing with respect thereto, other than any Product Trademark that is confusingly similar to, misleading or deceptive with respect to or that dilutes any (or any part) of any Product Trademarks.

Section 8.7 Third Party Actions.

8.7.1 Notification of Third Party Action. Each Party shall promptly disclose to the other Party in writing any warning letter or other notice of infringement or misappropriation received by a Party, or any action, suit or proceeding brought against a Party alleging infringement of a Patent Right or misappropriation of intellectual property of any Third Party with regard to any aspect of the conduct by either Party, its Affiliates, sublicensees or Distributors pursuant to this Agreement or a Program, including any defense or counterclaim in connection with an infringement action initiated pursuant to Section 8.4 (each, a "**Third Party Action**").

8.7.2 Takeda Right to Defend. As between the Parties, Takeda, [***] and through counsel of its choosing, shall have the first right, but not the obligation, to defend against any Third Party Action in the Territory alleging that the Development, Manufacture, Commercialization or other Exploitation of any Licensed Product infringes or misappropriates a Third Party's intellectual property rights; *provided, however* , that to the extent such Third Party Action alleges that any SLT-A Technology or any other MTEM Background IP (or any Know-How or Patent Right that, but for any misappropriation by or on behalf of MTEM or any of its Affiliates, would be considered an SLT-A Technology or other MTEM Background IP under this Agreement), or the Exploitation thereof, infringes or misappropriates a Third Party's intellectual property rights (the "**Third Party SLT-A IP**"), then MTEM shall be entitled to participate in

such Third Party Action with its own counsel, [***] and Takeda shall confer with MTEM in the defense and any settlement thereof, and shall consider reasonable recommendations made by MTEM with respect thereto. If Takeda, after consultation with MTEM, obtains a license or other rights from such Third Party to the Third Party SLT-A IP , whether by license, settlement, judgment or otherwise, Takeda shall be entitled to offset a total of up to [***] of the reasonable out-of-pocket costs and expenses of defending or settling such Third Party Action under this Section 8.7.2 (including the payment of any damage awards, settlement amounts or other similar amounts payable to such Third Party for the alleged infringement or misappropriation of such Third Party SLT-A IP , excluding any amounts otherwise deductible under Section 6.4.2(d)) as permitted under Section 6.4.2(g) . Nothing in this Section 8.7.2 shall limit MTEM's obligations under Article X to the extent such Third Party Action relates to a breach of a representation, warranty or covenant of MTEM in Article IX. Any recoveries awarded to Takeda in connection with any Third Party Action defended under this Section 8.7.2 shall be applied first to reimburse each of MTEM and Takeda for its respective reasonable out-of-pocket costs and expenses of defending such claim, suit or proceedings, with the balance of any such recoveries being shared between the Parties [***] to Takeda and [***] to MTEM. For clarity, to the extent such Third Party Action alleges that any Takeda Program IP or Takeda Background IP (or any Know-How or Patent Right that, but for any misappropriation by or on behalf of Takeda or any of its Affiliates, would be considered Takeda Program IP or Takeda Background IP under this Agreement), or the Exploitation thereof, infringes or misappropriates a Third Party's intellectual property rights and Takeda (with notice to and cooperation with MTEM) obtains a license or other rights from such Third Party to such intellectual property rights, whether by license, settlement, judgment or otherwise, Takeda shall cover all costs and expenses with no offset for defending or settling such Third Party Action under this Section 8.7.2. Takeda shall have the sole and exclusive right to select counsel for such Third Party Actions. MTEM shall have the right to select its own counsel to represent MTEM and consult with Takeda's selected counsel in any Third Party Action relating to the SLT-A Technology or the MTEM Background IP, or, if MTEM has not delivered a Co-Development Termination Notice and has paid its share of Co-Development Costs in full , the Takeda Targeting Moiety IP and Product Program IP.

8.7.3 Consultation; Settlement. The Parties shall consult with one another on all material aspects of the defense and settlement of Third Party Actions. The Parties shall reasonably and in good faith cooperate with each other in all such actions or proceedings. No Party shall admit the invalidity or unenforceability of any Patent Right Controlled by the other Party without the other Party's prior written consent.

Section 8.8 Invalidity or Unenforceability Defenses or Actions.

8.8.1 Each Party shall promptly notify the other Party in writing of any alleged or threatened assertion of invalidity or unenforceability of any of the Patent Right in the Joint Background IP, Program Patent Rights, the MTEM Background Patent Rights or the Takeda Background Patent Rights by a Third Party of which such Party becomes aware.

8.8.2 In the event that such an invalidity or unenforceability allegation or threatened assertion arises in connection with an enforcement proceeding governed by Section 8.4, then the Party controlling such action shall control the defense of any such allegation or assertion.

8.8.3 In the event that such an allegation or assertion arises outside of an enforcement action under Section 8.4, then the Parties shall discuss in good faith the most favorable approach to defend against any such allegation in light of each Party's commercial interests in the applicable Patent Rights, including which Party should control the defense of the validity and enforceability of the such Patent Rights except that Takeda shall have the sole right to control the defense with respect to any Program Patent Rights owned or Controlled by Takeda and Takeda Background Patent Rights and the [***] with respect thereto. Takeda shall have the right, but not the obligation, to defend and control the defense of the validity and enforceability of such Patent Rights at its sole expense in the Territory and using counsel of its own choice. If the Party controlling the defense against alleged or threatened assertion of any claim of invalidity or unenforceability with respect to a Program Patent Rights (other than with respect to any Program Patent Rights owned or Controlled by Takeda), Patent Right in the Joint Background IP, or MTEM Background Patent Right elects not to defend or control the defense of the applicable Patent Rights in a suit brought in the Territory or otherwise fails to initiate and maintain the defense of any such claim, suit or proceeding, then the other Party may conduct and control the defense and settlement of any such claim, suit or proceeding using counsel of its own choice at its sole cost and expense. Where a Party controls such an action, the other Party shall have the right to participate in any such claim, suit or proceeding with counsel of its choice at its sole cost and expense (provided, that the controlling Party shall retain control of the defense in such claim, suit or proceeding) and shall cause its Affiliates to, assist and cooperate with the controlling Party, at the controlling Party's expense, as such controlling Party may reasonably request from time to time in connection with its activities set forth in this Section. In connection with any activities with respect to a defense, claim or counterclaim relating to the Program Patent Rights (other than with respect to any Program Patent Rights owned or Controlled by Takeda) or the MTEM Background Patent Rights pursuant to this Section 8.8, the controlling Party shall (a) consult with the other Party as to the strategy for such activities, (b) consider in good faith any comments from the other Party and (c) keep the other Party reasonably informed of any material steps taken and provide copies of all material documents filed, in connection with such defense, claim or counterclaim, pursuant to Section 8.7.

Section 8.9 **T akeda Patent Challenge**. Takeda or any of its Affiliates or (sub)licensees will provide written notice to MTEM at least [***] prior to initiating any action or proceeding seeking a determination that any Patent Right comprising the [***] or [***] in any country is invalid or unenforceable (including a request for reexamination of any such Patent Right) (such action or proceeding, a "**Patent Challenge**"), which notice shall (a) state the basis for such Patent Challenge, and (b) include a copy of all relevant prior art or other materials used as the basis for such Patent Challenge. Upon delivery of such notice and during the pendency of any Patent Challenge, all milestone payments and royalties due under this Agreement will be increased by [***] and held in escrow pending the outcome of such Patent Challenge, being paid [***] only upon a finding of validity and enforceability of said Patent Rights covering a Licensed Product, and otherwise said payments and royalties being retained by Takeda (or its Affiliates or (sub)licensees). The foregoing provisions will not apply where MTEM, or any of its Affiliates or licensees, makes any claim or demand under or in connection with any Patent Right, whether informally or in connection with threatened or actual litigation, or whether through an assertion of entitlement to royalties, an action for infringement or otherwise, with respect to a product controlled by Takeda or any of its Affiliates or (sub)licensees (other than a Licensed Product) or the Exploitation thereof, and nothing herein will prejudice Takeda's (or its Affiliate's or (sub)licensee's) ability to challenge the validity or enforceability of such Patent Right.

ARTICLE IX
REPRESENTATIONS AND WARRANTIES; COVENANTS

Section 9.1 **Mutual Representations, Warranties and Covenants**. Each Party hereby represents and warrants, as of the Effective Date, and covenants (as applicable) to the other Party as follows:

9.1.1 **Corporate Existence and Power**. It is a company or corporation duly organized, validly existing, and in good standing under the laws of the jurisdiction in which it is incorporated, and has full corporate power and authority and the legal right to own and operate its property and assets and to carry on its business as it is now being conducted and as contemplated in this Agreement, including the right to grant the licenses granted by it hereunder.

9.1.2 **Authority and Binding Agreement**. As of the Effective Date, (a) it has the corporate power and authority and the legal right to enter into this Agreement and perform its obligations hereunder; (b) it has taken all necessary corporate action on its part required to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder; (c) this Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid and binding obligation of such Party that is enforceable against it in accordance with its terms; and (d) its execution of and performance under this Agreement will not violate or breach any obligation or restriction (including any confidentiality or non-competition obligation or any exclusivity restriction) to which such Party is legally bound by contract, judicial order or otherwise.

9.1.3 **No Conflict**. It is not a party to any agreement that would prevent it from granting the rights granted to the other Party under this Agreement or performing its obligations under this Agreement. It has the full right to grant the licenses or sublicenses (as applicable) granted herein and such grant shall not result in the misappropriation of any Third Party intellectual property or violation of such Third Party's rights with respect thereto. During the Term, it will not enter into any agreement, contract, commitment or other arrangement that could reasonably be expected to conflict with the rights granted to the other Party hereunder or otherwise prevent the other Party from exercising the rights granted to it hereunder. Neither Party shall misappropriate any trade secret of a Third Party in connection with the performance of its activities hereunder.

9.1.4 **No Debarment.** (a) Neither it nor any of its Affiliates has been debarred or is subject to debarment pursuant to Section 306 of the FFDCA or analogous provisions of Applicable Law outside the United States or listed on any Excluded List and (b) neither it nor any of its Affiliates has, to its knowledge, used in any capacity, in connection with the activities to be performed under this Agreement, any individual or entity that has been debarred pursuant to Section 306 of the FFDCA or analogous provisions of Applicable Law outside the United States, or that is the subject of a conviction described in such Section or analogous provisions of Applicable Law outside the United States, or listed on any Excluded List.

9.1.5 **Government Authorizations**. It will maintain throughout the Term all material permits, licenses, registrations and other forms of authorizations and approvals from any Governmental Authority, necessary or required to be obtained or maintained by such Party in order for such Party to execute and deliver this Agreement and to perform its obligations hereunder in a manner which complies with all Applicable Law.

9.1.6 IP Infringement. To each Party's knowledge, as of the Effective Date, (a) the materials to be supplied by such Party for the conduct of the Early Stage Program and (b) the use and practice of the Takeda and MTEM Background IP for the conduct of the Early Stage Program, in each case ((a) and (b)), would not infringe any intellectual property rights of any Third Party.

Section 9.2 Additional Representations, Warranties and Covenants of MTEM . MTEM represents and warrants to Takeda as of the Effective Date, and covenants, as specified below.

9.2.1 Non-Infringement of MTEM Background Patent Rights by Third Parties . To MTEM's actual knowledge following reasonable internal due inquiry, there are no activities by Third Parties that would constitute misappropriation or infringement of the MTEM Background Patent Rights within the Territory.

9.2.2 Ownership. MTEM Controls the MTEM Background IP, MTEM Program IP, including the SLT-A Technology existing as of the Effective Date, and its interest in any Joint Background IP, Product Program IP or Other Program IP free and clear of all liens and encumbrances that do not conflict with the (a) rights granted Takeda hereunder; (b) rights granted to Takeda under the Multi-Target Agreement; or (c) any other written agreement between the Parties. MTEM has the exclusive right to grant, all rights and licenses (or sublicenses, as the case may be) it purports to grant to Takeda under this Agreement (other than those rights and licenses granted to Takeda in a separate written agreement) and neither such rights and licenses nor any other provision of this Agreement are subject to any in-license or other similar agreements with another Person regarding any intellectual property rights licensed to MTEM hereunder. MTEM has not misappropriated and will not misappropriate any intellectual property of a Third Party in connection with developing the MTEM Background IP, Joint Background IP, Program IP or performing its obligations under the 2016 Research Collaboration Agreement or under this Agreement.

9.2.3 Validity and Enforceability. To MTEM's actual knowledge following reasonable internal due inquiry, MTEM has complied in all material respects with all Applicable Law with respect to the filing, prosecution and maintenance of those MTEM Background Patent Rights or, with respect to any representations and warranties made before the Effective Date, Program Patent Rights owned by MTEM or otherwise of which MTEM has control of such filing, prosecution and maintenance (the "**MTEM Prosecution Patent Rights** ") and, to MTEM's actual knowledge following reasonable internal due inquiry, the filing, prosecution and maintenance of all other MTEM Background Patent Rights and Program Patent Rights have been in compliance in all material respects with all Applicable Laws with respect thereto. To MTEM's knowledge, MTEM has paid all maintenance and annuity fees with respect to the MTEM Prosecution Patent Rights due and all maintenance and annuity fees with respect to all other MTEM Background Patent Rights have been paid when due. No dispute regarding inventorship has been alleged or threatened with respect to the MTEM Prosecution Patent Rights or Program Patent Rights, and to MTEM's knowledge, with respect to any other MTEM Background Patent Rights or Program Patent Rights.

9.2.4 No Action or Claim. There (a) are no actual, pending or, to MTEM's knowledge, alleged or threatened, adverse actions, suits, claims, interferences, re-examinations, oppositions, inventorship challenges or formal governmental investigations involving the MTEM

Background IP or, with respect to any representations and warranties made after the Effective Date, involving the Program Patent Rights owned or controlled by MTEM, by or against MTEM or any of its Affiliates, in each case that are in or before any Governmental Authority, and (b) are no actual, pending or, to MTEM's knowledge, alleged or threatened, adverse actions, suits, claims, interferences, re-examinations, oppositions, inventorship challenges or formal governmental investigations involving the MTEM Background IP, in each case that are in or before any Governmental Authority, which if adversely determined would have a material effect upon the ability of MTEM to use or provide the MTEM Background IP in connection with the activities to be conducted hereunder, or to fulfil its obligations pursuant to the terms of this Agreement.

9.2.5 Completeness. Schedule 9.2.5 includes a complete and correct list, in all respects, of all MTEM Background Patent Rights, said Schedule to be updated in a timely manner with relevant MTEM Background Patent Rights.

9.2.6 No Required Licenses. Except for a certain license relating to a [***] may desire to take, which may or may not be required to Develop, Manufacture or Commercialize the CD38 SLT-A Fusion Proteins or Licensed Products, no rights or licenses are required under or to practice the MTEM Background IP or MTEM Regulatory Documentation for Takeda to Develop, Manufacture or Commercialize the CD38 SLT-A Fusion Proteins or Licensed Products as contemplated herein other than those granted under Article III.

9.2.7 No Prior Written Agreements. Neither MTEM nor any of its Affiliates has previously entered into any written agreement, with respect to or otherwise assigned, transferred, licensed, granted a covenant not to sue, conveyed or otherwise encumbered its entire right, title or interest in or to (a) the MTEM Background IP, MTEM Regulatory Documentation or Joint Background IP, or, solely in the case in which this representation and warranty is made after the Effective Date pursuant to Section, Program Patent Rights or (b) any Patent Right or other intellectual property or proprietary right that would be MTEM Background IP, MTEM Regulatory Documentation or Joint Background IP, but for such assignment, transfer, license, conveyance or encumbrance, in each case ((a) and (b)), that is inconsistent with or otherwise diminish the rights and licenses granted to Takeda under this Agreement.

9.2.8 MTEM In-Licenses. As of the Effective Date, MTEM is not a party to any in-license or cross-license with regard to any MTEM Background IP and there are no prior agreements to which MTEM was a party that have surviving obligations that restrict or have an adverse material impact on either Party with respect to the MTEM Background IP. In the event there are any Future MTEM In-Licenses, MTEM shall update Schedule 9.2.8 accordingly. To MTEM's knowledge, no Third Party Manufacturer or supplier of CD38 SLT-A Fusion Proteins (including any Component thereof) engaged by MTEM as of the Effective Date Controls (as such defined term would apply to such Third Party if such Third Party were a party to this Agreement) any Know-How or Patent Right, that Takeda would be required to license in order for Takeda to manufacture such CD38 SLT-A Fusion Protein (including any such component thereof) as contemplated hereunder without infringing the intellectual property rights of such Third Party.

9.2.9 Manufacturing Agreements. There are no exclusivity provisions or any other restrictions in any agreement between MTEM or its Affiliates, on the one hand, and any Third Party Manufacturer of the CD38 SLT-A Fusion Proteins or Licensed Products (including

any Component thereof), on the other hand, that would limit Takeda's ability to have the CD38 SLT-A Fusion Proteins or Licensed Products (including any Component thereof) Manufactured by such Third Party Manufacturer or any other Person following the Technology Transfer.

9.2.10 **Compliance with Applicable Law** . The Development of MTEM Background IP and Project IP (As defined in the 2016 Research Collaboration Agreement) conducted by MTEM and its Affiliates and its and their subcontractors has been conducted in compliance with all Applicable Law in all material respects. To MTEM's actual knowledge following reasonable internal due inquiry, the pending applications included in MTEM Background Patent Rights are being diligently prosecuted in the respective patent offices in the Territory in accordance with Applicable Law and MTEM and its Affiliates have presented all relevant references, documents and information of which it and the inventors are aware to the relevant patent examiner at the relevant patent office where required by law.

9.2.11 **SLT-As and MTEM Background IP** . Schedule 9.2.11 sets forth a true and complete list of SLT-As with respect to which MTEM or its Affiliates Control MTEM Background IP. With respect to each CD38 SLT-A Fusion Protein, (a) MTEM is not a party to any agreement that would prevent it from granting the rights granted to Takeda under this Agreement or performing its obligations under this Agreement, (b) MTEM has the full right to grant the licenses and other rights granted in Article III, as applicable, granted herein and such grant shall not result in the misappropriation of any Third Party intellectual property or violation of any Third Party's rights with respect thereto and (c) [***].

9.2.12 **Government Funding**. The inventions claimed by the MTEM Background Patent Rights (a) were not conceived, discovered, developed or otherwise made in connection with any research activities funded, in whole or in part, by any state or the federal government of the United States or any agency thereof, (b) are not a "subject invention" as that term is described in 35 U.S.C. Section 201(e) and (c) are not otherwise subject to the provisions of the Patent and Trademark Law Amendments Act of 1980, as amended, codified at 35 U.S.C. §§ 200-212, as amended, as well as any regulations promulgated pursuant thereto, including in 37 C.F.R. part 401.

9.2.13 **CPRIT Agreements**.

(a) The CPRIT Agreements have been duly executed by both MTEM and the Cancer Prevention and Research Institute of Texas as of the Effective Date, true and accurate copies of which are to be delivered to Takeda prior to the Effective Date, and shall not, taken as a whole, (i) contain any untrue statement of a material fact or (ii) omit to state any material fact necessary to make the statements or facts contained therein, in light of the circumstances under which they were made, not misleading.

(b) MTEM will ensure that its proprietary engineered toxin body Directed to CD38, MT-4019, is the only CD38 SLT-A Fusion Protein possibly subject to any encumbrance under the CPRIT Agreements, including, but not limited to [***].

9.2.14 **University IP**. No Know-How or inventions (nor any Patent Rights and intellectual property or other proprietary rights) generated by [***] or individuals working on [***] behalf relating to the use or development of methods of making or screening libraries of SLT-A, or compositions of cytotoxic proteins identified therefrom, specific targeting moieties or any Improvements to any of the foregoing whether at, or on behalf of, [***] or otherwise, falls

within the scope of MTEM Background Know-How. All Know-How and inventions (and all Patent Rights and intellectual property or other proprietary rights) relating to [***] has been assigned to MTEM or one of its Affiliates, and any milestones or royalties due thereunder will be paid solely by MTEM.

9.2.15 The representations and warranties of MTEM in this Agreement and the information, documents and materials furnished to Takeda in connection with its period of diligence prior to the Effective Date, do not, taken as a whole, (a) contain any untrue statement of a material fact or (b) omit to state any material fact necessary to make the statements or facts contained therein, in light of the circumstances under which they were made, not misleading.

Section 9.3 **Additional Representations, Warranties and Covenants of Takeda**. Takeda represents and warrants to MTEM as of the Effective Date, to the actual knowledge of Takeda following reasonable internal due inquiry as of the Effective Date, and covenants, as specified below.

9.3.1 **Ownership**. Takeda Controls the Takeda Background IP, its interest in Joint Background IP and its interest in the Program IP free and clear of all liens and encumbrances that do not conflict with the rights granted to MTEM hereunder other than any rights granted to MTEM under the Multi-Target Agreement or any other written agreement between the Parties. Takeda has the right to grant, all rights and licenses (or sublicenses, as the case may be) it purports to grant to MTEM under this Agreement (other than those rights and licenses granted to MTEM in a separate written agreement) and neither such rights and licenses nor any other provision of this Agreement are subject to any in-license or other similar agreements with another Person regarding any intellectual property rights licensed hereunder. Takeda has not misappropriated and will not misappropriate any intellectual property of a Third Party in connection with developing the Takeda Background IP, Takeda Program IP or performing its obligations under the 2016 Research Collaboration Agreement or under this Agreement.

9.3.2 **Manufacturing Agreements**. There are no exclusivity provisions or any other restrictions in any agreement between Takeda or its Affiliates, on the one hand, and any Third Party Manufacturer of the CD38 SLT-A Fusion Proteins or Licensed Products (including any Component thereof), on the other hand, that would limit MTEM's ability to have the CD38 SLT-A Fusion Proteins or Licensed Products (including any Component thereof) Manufactured by such Third Party Manufacturer or any other Person as contemplated hereunder.

9.3.3 **Compliance with Applicable Law**. The Development of Takeda Background IP and Project IP (as defined in the 2016 Research Collaboration Agreement) conducted by Takeda and its Affiliates and its and their subcontractors has been conducted in compliance with all Applicable Law in all material respects.

9.3.4 **Takeda Background IP and Takeda Targeting Moiety IP** . With respect to each CD38 SLT-A Fusion Protein, Takeda is not a party to any agreement that would prevent it from granting the rights granted to MTEM under this Agreement or performing its obligations under this Agreement.

Section 9.4 **Additional Covenants of MTEM**.

9.4.1 MTEM shall not grant a lien on the MTEM Background IP or MTEM's interest in any Program IP to any Third Party or knowingly permit a lien to be imposed on the MTEM Background IP or MTEM's interest in any Program IP other than those disclosed to Takeda by MTEM and that do not conflict with the rights granted Takeda hereunder. MTEM will not misappropriate any intellectual property of a Third Party in connection with developing the MTEM Background IP, Program IP or the performance of the Programs or its other obligations under this Agreement.

9.4.2 MTEM shall not enter into any agreement with respect to or otherwise assign, transfer, license, convey or otherwise encumber its right, title or interest in or to (a) the MTEM Background IP for use with a CD38 SLT-A Fusion Protein or Licensed Product. MTEM's interest in any Program IP or MTEM Regulatory Documentation (including by granting any covenant not to sue with respect thereto) or (b) any Patent Right or other intellectual property or proprietary right that would be MTEM Background IP, Program IP or MTEM Regulatory Documentation, but for such assignment, transfer, license, conveyance or encumbrance, in each case of (a) and (b), that is inconsistent with or otherwise diminishes the rights and licenses granted to Takeda under this Agreement. MTEM shall maintain and perform its obligations under any Future MTEM In-Licenses and maintain such Future MTEM In-Licenses in full force and effect during the Term and will not amend any Future MTEM In-Licenses in a manner than adversely affects Takeda's rights hereunder, without having first obtained Takeda's express prior written consent.

9.4.3 Without limitation to any product warranty applicable under any Supply Agreement, all Fusion Protein Materials and MTEM Study Materials provided by or on behalf of MTEM hereunder will be Manufactured in conformance with Applicable Law and this Agreement.

9.4.4 Neither MTEM nor any of its Affiliates shall use in any capacity, in connection with the performance of the activities hereunder, any Person that has been debarred pursuant to Section 306 of the FFDCA or that is the subject of a conviction described in such section. MTEM shall inform Takeda in writing promptly if it or any such Person that is performing any activities hereunder is debarred or is the subject of a conviction described in Section 306 of the FFDCA or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, to MTEM's knowledge, is threatened, related to the debarment or conviction of it or any such Person performing any activities hereunder.

9.4.5 To the extent that any inventions claimed by the MTEM Background IP or Program IP are conceived, discovered, developed or otherwise made in connection with any research activities funded, in whole or in part, by the federal government of the United States or any agency thereof, MTEM shall comply with the provisions of the Patent and Trademark Law Amendments Act of 1980, as amended, codified at 35 U.S.C. §§ 200-212, as amended, as well as any regulations promulgated pursuant thereto, including in 37 C.F.R. part 401.

9.4.6 MTEM shall not use any Third Party funding with respect to the performance of the Early Stage Program Activities or the Manufacture of Licensed Products or Components thereof without the prior written consent of Takeda in each case, which consent may be withheld in Takeda's sole discretion.

9.4.7 MTEM shall comply with the CPRIT Agreements, shall not amend them without the consent of Takeda, shall notify Takeda of any MTEM breach of the CPRIT Agreements, and shall provide to Takeda any warning and noncompliance notices delivered thereunder.

Section 9.5 **Additional Covenants of Takeda**.

9.5.1 Takeda shall not grant a lien on the Takeda Background IP or Takeda's interest in any Program IP to any Third Party or knowingly permit a lien to be imposed on the Takeda Background IP or Takeda's interest in any Program IP (excluding liens that do not conflict with the rights granted MTEM hereunder). Takeda will not misappropriate any intellectual property of a Third Party in connection with developing the Takeda Background IP, Program IP or the performance of the Programs or its other obligations under this Agreement.

9.5.2 Takeda shall not enter into any agreement with respect to or otherwise assign, transfer, license, convey or otherwise encumber its right, title or interest in or to (a) the Takeda Background IP as part of a CD38 SLT-A Fusion Protein or Licensed Product or Takeda's interest in any Program IP (including by granting any covenant not to sue with respect thereto) or (b) any Patent Right or other intellectual property or proprietary right that would be Takeda Background IP, or Program IP, but for such assignment, transfer, license, conveyance or encumbrance, in each case of (a) and (b), that is inconsistent with or otherwise diminishes the rights and licenses granted to MTEM under this Agreement.

Section 9.6 **DISCLAIMER OF WARRANTIES**. EXCEPT FOR THE EXPRESS WARRANTIES SET FORTH HEREIN, NEITHER PARTY MAKES ANY REPRESENTATIONS OR GRANTS ANY WARRANTIES, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, BY STATUTE OR OTHERWISE AND EACH PARTY SPECIFICALLY DISCLAIMS ANY OTHER WARRANTIES, WHETHER WRITTEN OR ORAL OR EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE OR ANY WARRANTY AS TO THE VALIDITY OF ANY PATENT RIGHTS OR THE NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES.

ARTICLE X
INDEMNITY; LIMITATION OF LIABILITY

Section 10.1 **Indemnity**.

10.1.1 [***] shall defend, indemnify and hold harmless [***] and its Affiliates and Sublicensees and Distributors and their respective directors, officers, employees and agents (the [***]) from and against all liabilities, losses, damages, and expenses, including reasonable attorneys' fees and costs (collectively, "**Liabilities**"), incurred by or imposed on any of the [***] as a result of any Third Party claims, suits, actions, terminations or demands (collectively, "**Claims**") to the extent such Claims are incurred, relate to, are in connection with or arise out of (a) the breach or non-fulfillment of any representations, warranties or covenants in this Agreement by [***] (b) the negligence, recklessness or willful misconduct of [***] in connection with the performance of its obligations hereunder, (c) violation of Applicable Law by [***] in connection with the performance of its obligations hereunder, or (d) any Third Party agreement to which [***] has been, is or becomes a party, including the [***] except in each

case ((a) through (d)), to the extent such Liabilities resulted from any action for which [***] must indemnify [***] under Section 10.1.2(a) or (b).

10.1.2 [***] shall defend, indemnify and hold harmless [***], its Affiliates and its and their respective directors, officers, employees and agents (the "**[***]**") from and against all Liabilities incurred by or imposed on any of the [***] as a result of any Claims to the extent such Claims are incurred, relate to, are in connection with or arise out of (a) the breach or non-fulfillment of any representations, warranties or covenants in this Agreement by [***], (b) the negligence, recklessness or willful misconduct of [***] in connection with the performance of its obligations hereunder, (c) violation of Applicable Law by [***] in connection with the performance of its obligations hereunder, or (d) the [***] [***] its Affiliates or Sublicensees, except in each case ((a), (b), (c) or (d)), to the extent such Liabilities resulted from any action for which [***] must indemnify [***] under Section 10.1.1.

Section 10.2 **Procedure**.

10.2.1 A Party (the "**Indemnitee**") that intends to claim indemnification under this Section 10.2 shall promptly provide notice to the other Party (the "**Indemnitor**") of any Claim in respect of which the Indemnitee intends to claim such indemnification, which notice shall include a reasonable identification of the alleged facts giving rise to such Liability, and the Indemnitor shall have the right to participate in, and, to the extent the Indemnitor so desires, jointly with any other Indemnitor similarly noticed, to control the defense thereof with counsel selected by the Indemnitor. However, notwithstanding the foregoing, except with respect to any Claim that is a Third Party Action, the process for the defense of which shall be governed by Section 8.7, the Indemnitee shall have the right to participate in, but not control, the defense of any Claim, and request separate counsel, with the fees and expenses to be paid by the Indemnitee, unless (a) representation of such Indemnitee by the counsel retained by the Indemnitor would be inappropriate due to actual or potential differing interests between such Indemnitee and any other Party represented by such counsel in such proceedings or (b) the Indemnitor has failed to assume the defense of the applicable Claim, in which case ((a) or (b)), such fees and expenses shall be paid by the Indemnitor. The Indemnitee shall, and shall cause each of its Affiliates and its and their respective directors, officers, employees and agents, as applicable, to, cooperate in the defense or prosecution thereof and shall furnish such records, information and testimony, provide such witnesses and attend such conferences, discovery proceedings, hearings, trials and appeals and otherwise providing reasonable access to such indemnitees and other employees and agents of the Indemnitee, in each case as may be reasonably requested in connection therewith; provided, that the Indemnitor shall reimburse the Indemnitee for its reasonable and verifiable out-of-pocket expenses in connection therewith. The Indemnitor may not settle any Claim, and the Indemnitee shall not be responsible for or be bound by any settlement of a Claim that imposes an obligation on it, without the prior written consent of the Indemnitee, which consent shall not be unreasonably withheld, conditioned or delayed.

10.2.2 The assumption of the defense of a Claim by the Indemnitor shall not be construed as an acknowledgment that the Indemnitor is liable to indemnify the Indemnitee in respect of the Claim, nor shall it constitute a waiver by the Indemnitor of any defenses it may assert against the Indemnitee's claim for indemnification. In the event that it is ultimately determined that the Indemnitor is not obligated to indemnify, defend or hold harmless the Indemnitee from and against the Claim, the Indemnitee shall reimburse the Indemnitor for any

and all costs and expenses (including attorneys' fees and costs of suit) and any Liabilities incurred by the Indemnitor in its defense of the Claim.

Section 10.3 **Limitation of Liability**. EXCEPT (A) IN THE EVENT OF THE WILLFUL MISCONDUCT OR FRAUD OF A PARTY OR A PARTY'S BREACH OF ITS OBLIGATIONS UNDER ARTICLE VII OR SECTION 3.9 , (B) AS PROVIDED UNDER SECTION 12.13 OR (C) TO THE EXTENT ANY SUCH DAMAGES ARE REQUIRED TO BE PAID TO A THIRD PARTY AS PART OF A CLAIM FOR WHICH A PARTY PROVIDES INDEMNIFICATION UNDER THIS ARTICLE X, NEITHER PARTY NOR ANY OF ITS AFFILIATES OR SUBLICENSEES SHALL BE LIABLE IN CONTRACT, TORT, NEGLIGENCE, BREACH OF STATUTORY DUTY OR OTHERWISE FOR ANY SPECIAL, PUNITIVE, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR LOST PROFITS SUFFERED BY THE OTHER PARTY AND REGARDLESS OF ANY PRIOR NOTICE OF SUCH DAMAGES.

Section 10.4 **Insurance**. During the Term and thereafter for the period of time required below, each Party shall maintain on an ongoing basis comprehensive general liability insurance in the minimum amount of [***] per occurrence and [***] annual aggregate combined single limit for bodily injury and property damage liability and any other insurance required by Applicable Law. Commencing not later than [***] prior to the first use in humans of a Licensed Product and thereafter for the period of time required below, Takeda shall obtain and maintain on an ongoing basis products liability insurance (including contractual liability coverage on Takeda's indemnification obligations under this Agreement) in the amount of at least [***] per occurrence and as an annual aggregate combined single limit for bodily injury and property damage liability. All of such insurance coverage may be maintained through a self-insurance plan that substantially complies with the foregoing limits and requirements. Thereafter, Takeda shall maintain such insurance coverage without interruption during the Term and for a period of at least [***] thereafter. Each Party shall provide the other Party at least [***] prior written notice of any cancellation to or material change in its insurance coverage below the amounts and types described above.

ARTICLE XI
TERM AND TERMINATION

Section 11.1 **Term**. Unless earlier terminated pursuant to this Article XI, the term of this Agreement (the "**Term**") shall commence on the Effective Date and shall remain in full force and effect until the date of expiration of the last to expire relevant Royalty Term or Co-Development Royalty Term, as applicable. Upon expiration of the Royalty Term or Co-Development Royalty Term, as applicable, for a Licensed Product in a country or jurisdiction, the grants in Section 3.3 shall become fully-paid, royalty-free, freely transferable, sublicensable through multiple tiers, perpetual and irrevocable for such Licensed Product in such country or jurisdiction, with no further obligation to MTEM for such Licensed Product.

Section 11.2 **Termination by Takeda** . Takeda shall have the right, at any time, to terminate this Agreement, in its entirety, by providing not less than ninety (90) days' prior written notice to MTEM of such termination.

Section 11.3 **Termination for Material Breach.**

11.3.1 **Breach**. Either Party may (but is not required to and without limitation of any other right or remedy such Party may have) terminate this Agreement for material breach by the other Party (the "**Breaching Party**") of this Agreement if the Breaching Party has not cured such breach within [***] after notice thereof (such period, the "**Notice Period**") specifying the breach and its claim of right to terminate, other than:

(a) with respect to a breach that cannot be cured within the Notice Period and the Breaching Party commences actions to cure such breach within the Notice Period, in which case the Notice Period shall be tolled (provided, that the Breaching Party thereafter diligently continues such actions); or

(b) with respect to any alleged breach by Takeda of its diligence obligations set forth in Section 2.1.3 and Section 2.3.3 in which case, MTEM shall first provide written notice thereof to Takeda and the Parties shall meet within [***] after delivery of such notice to Takeda to discuss in good faith such alleged breach and Takeda's Development and Commercialization plans, as applicable, with respect to the applicable Licensed Product, which discussions shall be concluded before MTEM may issue any such termination notice with respect to such alleged breach; provided, that if either Party initiates a dispute resolution procedure under Section 12.3 as permitted under this Agreement to resolve the dispute for which termination is being sought within [***] following the end of the Notice Period and is diligently pursuing such procedure, the Notice Period shall be tolled and the termination shall become effective only if such breach remains uncured for [***] after the final resolution of the dispute through such dispute resolution procedure (or, if the breach cannot be cured within such [***] period, if the Breaching Party commences actions to cure such breach within such period and thereafter diligently continues such actions). It is understood that termination pursuant to this Section 11.3.1 shall be a remedy of last resort and may be invoked only in the case where the breach cannot be reasonably remedied by the payment of money damages. During any cure period under this Section 11.3.1 in response to a notice from Takeda, any obligation of Takeda to pay milestones under Article VI shall be suspended unless and until MTEM has cured the material breach at issue; provided, however, that within [***] after such cure, Takeda shall pay to MTEM all such suspended milestone payments.

11.3.2 **Insolvency** . Either Party may terminate this Agreement in its entirety effective immediately upon written notice to the other Party if, at any time such other Party (a) files in any court or agency pursuant to any statute or regulation of any state or country a petition in bankruptcy or insolvency or for reorganization (save for solvent reorganization or solvent reconstruction), (b) files for, appoints or suffers appointment of a receiver or trustee of the Party or over substantially all of its assets that is not discharged within [***] after such filing, (c) proposes a written agreement of composition or extension of substantially all of its debts, (d) files a petition under any bankruptcy or insolvency act or has any such petition filed against that is not discharged within [***] of the filing thereof, (e) proposes or is a party to any dissolution or liquidation, (f) admits in writing its inability generally to meet its obligations as they fall due in the general course or (g) makes an assignment of substantially all of its assets for the benefit of creditors.

Section 11.4 **License Survival Upon Insolvency** . All licenses (and to the extent applicable, rights) granted under or pursuant to this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of 11 U.S.C. § 101, et. seq. ("**Bankruptcy Code**"), licenses of rights to "intellectual property" as defined under the Paragraph 101(35A) of the

Bankruptcy Code. The Parties agree that the non-bankrupt Party shall retain and may fully exercise all of its rights and elections under Applicable Law. The Parties further agree that, in the event of the commencement of bankruptcy proceeding by or against a bankrupt Party, the other Party shall be entitled to a complete duplicate of (or complete access to, as appropriate) any intellectual property that is licensed to such Party pursuant to the license grants set forth in Article III , but only to the extent set forth in such license grants, and all embodiments of such intellectual property; and the same, if not already in the other Party's possession, shall be promptly delivered to the other Party (a) upon any such commencement of a bankruptcy proceeding, upon the other Party's written request therefor (which request must identify the specific intellectual property), unless the bankrupt Party (or trustee on behalf of the bankrupt Party) elects within [***] to continue to perform all of its obligations under this Agreement or (b) if not delivered under (a) above, upon rejection of this Agreement by or on behalf of the bankrupt Party, upon written request therefore by the other Party.

Section 11.5 Effect of Expiration and Termination.

11.5.1 General Effects. Except where explicitly provided within this Agreement, expiration or termination of this Agreement in its entirety as applicable for any reason, or expiration of this Agreement, will not affect any obligations, including payment of any royalties or other sums which have accrued as of the date of termination or expiration. Notwithstanding the foregoing, but subject to Section 11.1, upon expiration or termination of this Agreement, the Parties' obligations pursuant to Section 3.9 will [***] terminate in full. Following the delivery of a notice of termination of this Agreement, Takeda shall not be responsible for the payment of any future milestones under this Agreement other than those that were due prior to the delivery of the notice of termination. Except as needed in order to permit the sell-off activities set forth in Section 11.5.2, upon termination of this Agreement in its entirety, all licenses granted by either Party to the other Party hereunder (other than the licenses granted in Section 3.2, which will survive except that the license granted the terminated Party in the case of a termination under Section 11.3 shall terminate) shall terminate and all sublicenses granted by either Party thereunder, shall [***] terminate. For clarity, the Program with respect to the terminated Licensed Products shall terminate effective upon receipt of notice of termination. Upon expiration or termination of this Agreement in its entirety, the Parties will agree upon and implement a plan for the orderly transition or winding down of any in-process regulatory filings or Clinical Trials in a manner consistent with Applicable Laws and standards of ethical conduct of Clinical Trials.

11.5.2 Sell-Off. In the case that the licenses granted to Takeda with respect to one or more Licensed Products, notwithstanding such termination, Takeda shall have the right to complete (or have completed) the Manufacture of any work-in-process Licensed Products or Components thereof and sell any existing inventory of Licensed Product(s) (if applicable) with respect to the terminated Licensed Product for a period of up [***] following such termination, subject to Takeda's obligation to make corresponding payments with respect to any such sales pursuant to Section 6.4.

11.5.3 Effect of Termination by Takeda for Convenience, or by MTEM for Material Breach by Takeda or Takeda Insolvency. If MTEM terminates this Agreement in its entirety pursuant to Section 11.3.1 or Section 11.3.2 , or Takeda terminates this Agreement in its entirety pursuant to Section 11.2, then, in addition to Section 11.5.1 and Section 11.5.2, MTEM

may request, no later than [***] after the effective date of termination, a written agreement setting forth the following terms and other reasonable and customary license terms:

(a) (i) If MTEM exercised the Co-Development Option and has not delivered a Co-Development Termination Notice, Takeda would grant to MTEM, effective as of the effective date of such termination, a worldwide, exclusive, sublicensable, royalty-bearing license under Takeda's interest in the Joint Background IP and the Product Program IP and a non-exclusive, sublicensable, royalty-bearing license (where the royalties are set forth on Exhibit 11.5.3) under the Takeda Targeting Moiety IP, and Takeda Background IP (but only to the extent such Takeda Background IP was used during the Term in connection with the Licensed Products that incorporate or are comprised of the CD38 SLT-A Fusion Proteins listed in the Recitals and are in clinical development or being commercialized as of the effective date of termination of this Agreement ("**Reversion Products**")) that relates to the Reversion Products and is necessary for the Development, Manufacture or Commercialization of Reversion Products, in each case solely to Develop, Manufacture and Commercialize Reversion Products; or (ii) if MTEM has either not exercised the Co-Development Option or a Co-Development Termination Notice has been delivered, then Takeda shall grant the license described above under the Joint Background IP and the Product Program IP on the terms and conditions referenced above but such license shall not include the Takeda Targeting Moiety IP or Takeda Background IP; if MTEM desires a license to Takeda Targeting Moiety IP or Takeda Background IP for the purposes described above, then MTEM shall notify Takeda in writing within [***] of the effective date of termination whether or not it desires to take such license and if so, then the terms of such license, including additional financial compensation to Takeda, shall be negotiated in good faith for a period of [***] after receipt of such notice from MTEM;

(b) MTEM shall pay to Takeda (i) the development milestones and royalties set forth in Exhibit 11.5.3 and (ii) the amounts payable by [***] in each case ((i) and (ii)) to the extent arising from MTEM's (or its Affiliates or (sub)licensees' Development, Manufacture or Commercialization of the Reversion Products), and Section 6.6 through Section 6.11 shall apply, *mutatis mutandis*, with respect to MTEM's calculation, reporting and payment of such milestones and royalties on the Reversion Products In addition, MTEM shall be entitled to applicable step downs in Section 6.4.2, *mutatis mutandis*, except that aggregate deductions shall not exceed [***] and any portions of Section 6.4.2 that is specific to circumstances where the Co-Development Option has been exercised shall be ignored;

(c) Takeda shall transfer and assign to MTEM all right, title and interest in any regulatory filings (including, but not limited to, INDs and European Union Clinical Trial Authorizations) made by Takeda or any of its Affiliates relating solely to Reversion Products, all regulatory materials relating solely to Reversion Products, and all non-clinical, clinical and other reports, records, data and other information developed or generated by or for Takeda or any of its Affiliates that relates solely to the Reversion Products that are reasonably required for MTEM to continue Development and Commercialization and to satisfy requirements imposed by applicable Regulatory Authorities with respect to the Reversion Products;

(d) Takeda shall use good faith efforts to continue any ongoing Clinical Trials and shall cooperate with MTEM to effect an orderly transfer of Development, Manufacturing and regulatory responsibilities with respect to the relevant Licensed Product as promptly as practicable, at MTEM's expense, including by (i) continuing to perform the

Development activities for which Takeda is responsible as assigned to Takeda under any applicable Program Plan until entry into a written agreement with MTEM setting forth the license terms following the effective date of termination of this Agreement, (ii) transferring to MTEM all quantities of Licensed Product required to complete any Clinical Trials underway at the time of such termination and (iii) transferring the Manufacturing process for Licensed Products to MTEM or its designee;

(e) At MTEM's written request (and at MTEM's cost and no cost to Takeda), to the extent Takeda has the right to do so, the license shall include a sublicense under Takeda's rights in any or all Third Party agreements (including Existing Third Party Agreements) to the extent reasonably necessary for the Development, Manufacture or Commercialization of Licensed Products; for any such agreement for which Takeda does not have the right to grant a sublicense as contemplated under this clause (e), Takeda shall use commercially reasonable efforts to obtain consent to sublicense but in no event shall Takeda be required to provide any financial consideration to the Third Party in order to obtain such consent, unless MTEM pays to Takeda such financial consideration;

(f) Pursuant to a supply agreement to be negotiated in good faith by the Parties at the transfer price paid by Takeda for the applicable Licensed Product, if Takeda sources such product from a Third Party, or at [***] of Takeda's actual, direct costs of manufacture (excluding allocable overhead, depreciation, and the like), Takeda will supply MTEM with commercial quantities of the applicable Licensed Product in the dosage strength, formulation and presentation under Development or being Commercialized by Takeda, in either case, as of the effective date of termination of this Agreement in its entirety until the earlier of [***] after the effective date of termination of the Agreement or establishment by MTEM of an alternative supply for such Licensed Product. Pursuant to an agreed technology transfer plan, at MTEM's expense, Takeda shall also within [***] after MTEM's request, provide to MTEM or its designee all information in its possession with respect to the Manufacture of such Licensed Product reasonably sufficient for the transfer of such Manufacture to MTEM or a mutually agreed upon contract manufacturer organization;

(g) Takeda will consider in good faith, upon MTEM's request, the transfer or assignment to MTEM all of Takeda's and its Affiliates' right, title and interest in and to any trademarks owned by Takeda or its Affiliates that are used (or held for use) solely and exclusively for any Licensed Products (excluding any trademark containing the word "Takeda" or "Millennium");

(h) The Parties shall coordinate with regard to facilitating an orderly transition or, if MTEM does not desire to proceed, with regard to an orderly wind-down; and

(i) [***] may not exercise its final decision making with regard to setting the terms of the termination license agreement under this Section 11.5.3.

11.5.4 Effect of Termination by Takeda for Material Breach or for MTEM Insolvency. If Takeda terminates this Agreement in its entirety pursuant to Section 11.3.1 or Section 11.3.2, for clarity, the consequences set forth in Section 11.5.1 and Section 11.5.2 shall apply.

11.5.5 Continuation in Lieu of Termination. If Takeda has the right to terminate this Agreement under Section 11.3 (and MTEM does not dispute such right) but does

not elect to exercise such right, this Agreement shall continue in full force and effect with MTEM having the right to exercise its Co-Development Option or its rights to continue Co-Development shall terminate, (a) Takeda shall no longer have any obligations under any of the following: Sections 2.1.3, 2.1.5, 2.3.3, or 3.9.2 or Article VIII and (b) the licenses granted to MTEM hereunder shall terminate, (c) any milestones and royalties due hereunder shall be reduced by [***] of the amount that would otherwise be due under Section 6.2, Section 6.3 and Section 6.4, and (d) Takeda shall have the right to disband any and all committees and decisions within the authority of the applicable committee shall be in the authority of Takeda in its sole discretion. If Takeda has the right to terminate this Agreement under Section 11.3, delivers a notice, but MTEM does not cure the material breach within the specified cure period, then if Takeda later terminates this Agreement in its entirety pursuant to Section 11.2, then Section 11.5.4 shall apply and Section 11.5.3 shall not apply.

11.5.6 **Survival**.

(a) The following provisions will survive expiration of this Agreement: Section 2.1.4, Section 2.1.6, Section 2.2, Section 2.3.1, Section 2.3.2, Section 2.4, Section 3.2, Section 3.3, Section 3.4 (to the extent related to the surviving licenses under Section 3.2 and 3.3), Section 3.5.1, Section 3.6, Section 3.8 (as it relates to any Joint Background IP and any jointly owned Program IP), Section 6.5 (for any Co-Development Costs incurred during the Term and any non-cancellable Co-Development Costs committed prior to the date of the expiration of this Agreement and any wind-down or transfer costs, which shall constitute Co-Development Costs), Section 6.6 (for any royalties on Net Sales of Licensed Products by Takeda made during Royalty Term or Co-Development Royalty Term, whichever is applicable, and either during the Term or pursuant to Section 11.5.2), Section 6.7 through Section 6.13 (for final royalty reporting and payment), Article VII, Section 8.1, Section 8.2, Section 8.3, Section 8.4, Section 8.5, Section 8.7, Section 8.8, and Article X, Article XI and Article XII(other than 12.7.2).

(b) The following provisions will survive termination of this Agreement: Section 2.1.4, Section 2.4, Section 3.2, Section 3.4 (to the extent related to the surviving licenses under Section 3.2), Section 3.8 (as it relates to any Joint Background IP and any jointly owned Program IP), Section 6.5 (for any Co-Development Costs incurred during the Term and any non-cancellable Co-Development Costs committed prior to the date of the termination of this Agreement and any wind-down or transfer costs, which shall constitute Co-Development Costs), Section 6.6 (for any royalties on Net Sales of Licensed Products by Takeda made during Royalty Term or Co-Development Royalty Term, whichever is applicable, and either during the Term or pursuant to Section 11.5.2), Section 6.7 through Section 6.13, Article VII, Section 8.1, Section 8.2, Section 8.3.3, Section 8.3.4 and, as it relates to surviving Section 8.3.3 and Section 8.3.4, Section 8.3.5, Section 8.7 (for any action ongoing as of the date of termination of this Agreement or any action that relates to conduct under this Agreement during the Term) and Article X, Article XI and Article XII (other than Section 12.7.2).

ARTICLE XII
MISCELLANEOUS

Section 12.1 **Notices**. Any consent, notice or report required or permitted to be given or made under this Agreement by one of the Parties to the other shall be in writing, delivered personally or by facsimile (and promptly confirmed by personal delivery, first class air mail or

courier), first class air mail or courier, postage prepaid (where applicable), addressed to such other Party at its address indicated below, or to such other address as the addressee shall have last furnished in writing to the address or in accordance with this Section 12.1 and (except as otherwise provided in this Agreement) shall be effective upon receipt by the addressee. This Section 12.1 is not intended to govern the day-to-day business communications necessary between the Parties in performing their obligations under the terms of this Agreement.

If to MTEM:
Molecular Templates, Inc.

185 Hudson Street, Harborside 5, Suite 1510
Jersey City, NJ 07311
Attention: Barbara A. Ruskin, General Counsel
Telephone: [***]
Email: [***]

If to Takeda:
Millennium Pharmaceuticals, Inc.
40 Landsdowne Street
Cambridge, MA 02139
Attention: Legal Department
Telephone: (617) 679-7000
Facsimile: [***]

Section 12.2 **Applicable Law; Jurisdiction**. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts, without regard to the conflict of law principles thereof that may dictate application of the laws of any other jurisdiction. Subject to Section 12.3, the Parties hereby irrevocably and unconditionally consent to the exclusive jurisdiction of the courts of the Commonwealth of Massachusetts for any action, suit or proceeding (other than appeals therefrom) arising out of or relating to this Agreement.

Section 12.3 **Dispute Resolution**. The Parties agree that if any dispute or disagreement (a "**Dispute**") in respect of this Agreement arises between Takeda on the one hand and MTEM on the other, or the JSC where Takeda does not have [***] decision-making authority, subject to Section 12.13, the Parties shall follow the following procedure in an attempt to resolve the dispute or disagreement.

12.3.1 The Party claiming that such a dispute exists shall give notice in writing ("**Notice of Dispute** ") to the other Party of the nature of the dispute.

12.3.2 Within [***] following receipt of a Notice of Dispute, the [***] of MTEM and the [***] (or equivalent) of Takeda shall meet at a mutually agreed upon time and location (which may be by phone) for the purpose of resolving such dispute.

12.3.3 In the event of a dispute between the Parties requiring resolution by a panel of experts ("**Expert Panel**"), such dispute shall be resolved in accordance with this Section 12.3.3. Notice from a Party initiating resolution by the Expert Panel shall contain a statement of the issue forming the basis of the dispute, the position of the moving Party as to the proper resolution of that issue and the basis for such position. Within [***] after receipt of such notice,

the responding Party shall submit to the moving Party a statement of its conception of the specific issue in question, its position as to the proper resolution of that issue and the basis for such position.

(a) Within [***] of the responding Party's response, each Party shall appoint to the Expert Panel an individual who (i) has expertise in the pharmaceutical or biotechnology industry and the specific matters at issue, (ii) is not a current or former director, employee or consultant of such Party or any of its Affiliates, or otherwise has not received compensation or other payments from such Party (or its Affiliates) for the [***] and (iii) has no known personal financial interest or benefit in the outcome or resolution of the dispute, and the appointing Party shall give the other Party written notice of such appointment; provided, that for such appointment to be effective and for such individual to serve on the Expert Panel, such individual must deliver to the other Party a certificate confirming that such individual satisfies the criteria set forth in clauses (i) through (iii) above, disclosing any potential conflict or bias and certifying that, as a member of the Expert Panel, such individual is able to render an independent decision. Within [***] of the appointment of the second expert, the two (2)-appointed experts shall agree on an additional expert who meets the same criteria as described above, and shall appoint such expert as chair of the Expert Panel. If the Party-appointed experts fail to timely agree on a third expert, then upon the written request of either Party, each Party-appointed expert shall, within [***] of such request, nominate one expert candidate and the CPR Institute for Dispute Resolution shall, within [***] of receiving the names of the Parties' respective nominees, select one of those experts to serve as the chair of the Expert Panel. Each expert shall agree, prior to his or her appointment, to render a decision as soon as practicable after the appointment of the full Expert Panel.

(b) Within [***] of the appointment of the third expert, the Expert Panel shall hold a preliminary meeting or teleconference with the Parties or their representatives and shall designate a time and place for a hearing of the Parties on the dispute and the procedures to be utilized at the hearing. The Parties may agree in writing to waive the hearing and have the Expert Panel reach a decision on the basis of written submissions alone. The Expert Panel may order the Parties to produce any documents or information that are relevant to the dispute. All such documents or information shall be provided to the other Party and the Expert Panel as expeditiously as possible but no later than [***] prior to the hearing (if any), along with the names of all witnesses who will testify at the hearing and a brief summary of their testimony. The hearing shall be held in Boston, MA unless otherwise agreed by the Parties, and shall take place as soon as possible but no more than [***] after the appointment of the third expert, unless the Parties otherwise agree in writing or the Expert Panel agrees to extend such time period for good cause shown. The hearing shall last no more than [***], unless otherwise agreed by the Parties or the Expert Panel agrees to extend such time period for good cause shown. After the conclusion of all testimony (or if no hearing is held after all submissions have been received from the Parties), at a time designated by the Expert Panel no later than [***] after the close of the hearing or the receipt of all submissions, each Party shall simultaneously submit to the Expert Panel and exchange with the other Party its final proposed resolution.

(c) In rendering the final decision (which shall be rendered no later than [***] after receipt by the Expert Panel of the Parties' respective proposed resolutions), the Expert Panel shall be limited to choosing a resolution proposed by a Party without modification; provided, that in no event shall the Expert Panel render a decision that is inconsistent with the Parties' intentions as set forth in this Agreement. The agreement of two (2) of the three (3)

experts shall be sufficient to render a decision and the Parties shall abide by such decision. The decision of the Expert Panel shall be final and binding on the Parties and may be entered and enforced in any court having jurisdiction. The Parties shall share equally the costs and expenses of the Expert Panel.

12.3.4 In the event of an unresolved dispute between the Parties involving intellectual property, including any disputes relating to inventorship or the validity, enforceability or scope of any patent or trademark rights shall, but other than as set forth in Section 12.3.3, such dispute shall, at either Party's election and subject to Section 12.2, be submitted for resolution by a court of competent jurisdiction.

12.3.5 In the event of a dispute regarding any payments owing under this Agreement, all undisputed amounts shall be paid promptly when due and the balance, if any, promptly after resolution of the dispute.

Section 12.4 **Entire Agreement**. This Agreement, together with the Exhibits and Schedules attached hereto and the Quality Agreement, contains the entire understanding of the Parties with respect to the specific subject matter hereof. All express or implied agreements and understandings, either oral or written, heretofore made are expressly superseded by this Agreement (other than the Multi-Target Agreement). This Agreement may be amended, or any term hereof modified, only by a written instrument duly executed by both Parties. The Multi-Target Agreement shall remain in effect by its terms, except that with respect to the Licensed Product and Target and other subject matter of this Agreement, this Agreement shall control.

Section 12.5 **Severability**. Each Party hereby agrees that it does not intend to violate any public policy, statutory or common laws, rules, regulations, treaty or decision of any government agency or executive body thereof of any country or community or association of countries. Should one or more provisions of this Agreement be or become invalid, the Parties shall substitute, by mutual consent, valid provisions for such invalid provisions, in their economic effect, are sufficiently similar to the invalid provisions that it can be reasonably assumed that the Parties would have entered into this Agreement based on such valid provisions. In case such alternative provisions cannot be agreed upon, the invalidity of one or several provisions of this Agreement shall not affect the validity of this Agreement as a whole, unless the invalid provisions are of such essential importance to this Agreement that it is to be reasonably assumed that the Parties would not have entered into this Agreement without the invalid provisions.

Section 12.6 **Force Majeure**. No Party (or any of its Affiliates) shall be held liable or responsible to the other Party (or any of its Affiliates) hereunder, or be deemed to have defaulted under or breached this Agreement, for failure or delay by such Party in fulfilling or performing any term of this Agreement when such failure or delay is caused by or results from causes beyond the reasonable control of the affected Party (or any of its Affiliates), including fire, floods, embargoes, war, acts of war (whether war be declared or not), insurrections, riots, civil commotions, acts of God, earthquakes, or omissions or delays in acting by any Governmental Authority (each, an "**Event of Force Majeure**"); provided, that the affected Party shall exert all reasonable efforts to eliminate, cure or overcome any such Event of Force Majeure and to resume performance of its obligations promptly. Notwithstanding the foregoing, to the extent that an Event of Force Majeure continues for a period in excess of [***], the affected Party shall promptly notify in writing the other Party of such Event of Force Majeure and within [***] of

the other Party's receipt of such notice, the Parties shall negotiate in good faith either (a) a resolution of the Event of Force Majeure, if possible or (b) an extension by mutual agreement of the time period to resolve, eliminate, cure or overcome such Event of Force Majeure.

Section 12.7 Assignment and Change of Control.

12.7.1 Assignment . Neither Party may assign its rights or, except as provided in Section 12.8 and Article VIII, delegate its obligations under this Agreement, whether by operation of law or otherwise, in whole or in part (including with respect to any CD38 SLT-A Fusion Protein or any Licensed Product) without the prior written consent of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed, except that Takeda shall have the right, without such consent, (a) to perform any or all of its obligations and exercise any or all of its rights under this Agreement through any of its Affiliates, Sublicensees or Distributors, and (b) assign any or all of its rights and delegate any or all of its obligations hereunder (including on a CD38 SLT-A Fusion Protein-by-CD38 SLT-A Fusion Protein or Licensed Product-by-Licensed Product basis) to any of its Affiliates or its or their Sublicensees or to any successor in interest (whether by merger, acquisition, asset purchase or otherwise) to all or substantially all of the business to which this Agreement (or the CD38 SLT-A Fusion Protein or Licensed Product(s)) relates; provided that Takeda shall provide written notice to MTEM within [***] after such assignment or delegation. Any permitted successor of Takeda or any permitted assignee of all of Takeda's rights under this Agreement that has also assumed all of Takeda's obligations hereunder in writing shall, upon any such succession or assignment and assumption, be deemed to be a party to this Agreement as though named herein in substitution for Takeda, whereupon Takeda shall cease to be a Party to this Agreement and shall cease to have any rights or obligations under this Agreement. All validly assigned rights of Takeda shall inure to the benefit of and be enforceable by, and all validly delegated obligations of Takeda shall be binding on and be enforceable against, the permitted successors and assigns of Takeda. Any attempted assignment or delegation in violation of this Section 12.7 shall be void and of no effect.

12.7.2 Change in Control. MTEM shall notify Takeda in writing as soon as possible after MTEM announces a Change in Control of MTEM (or if the Change in Control will not be publicly announced, then no later than [***] after the signing of the Change in Control). Takeda shall have the right, at its election in its sole discretion, to take one or more of the following actions by written notice to MTEM:

(a) disband any or all of the Joint Steering Committee, the Joint Development Committee and the Joint Manufacturing Committee and the Joint Patent Committee and any other committees or working groups, and terminate the activities of such committees;

(b) undertake any not yet completed Early Stage Program activities of MTEM, if any, solely and exclusively by (or on behalf of) itself (without any consultation with or approval by MTEM) and neither MTEM nor any of its Affiliates shall have the right to receive reports under Section 2.1.5 from and after the date of such Change in Control and in such case MTEM shall cease conducting such activities;

(c) require that (i) the Future Acquirer agree in writing to maintain at least the same level of diligence in performing its obligations under this Agreement, including its

Manufacturing and its Co-Development payment obligations after the Change in Control, if the Co-Development Option has been exercised, at or above the level of diligence that had been applied prior to the Change in Control, unless otherwise agreed to in writing by the Parties, and (ii) no employee of the Future Acquirer or such Future Acquirer's Affiliates shall participate in or contribute to the performance of MTEM's obligations in connection with the Early Stage Program, the Post Phase Ia Program or Manufacturing hereunder (and may not serve as the primary contact or as representative, member, delegate or attendee of the Joint Steering Committee, Joint Manufacturing Committee, the Joint Patent Committee or the Joint Development Committee (if such applicable committee remains constituted, at Takeda's discretion)) or otherwise be provided or have access to any Confidential Information of Takeda.

Without limiting the foregoing, MTEM shall not disclose to, and shall implement appropriate protections to prevent the use by such Future Acquirer of any Program IP or other Product Information for uses that are the subject of an exclusive license to Takeda with respect to Development and Commercialization of Licensed Products.

Section 12.8 **Performance by Affiliates**. The Parties recognize that each may perform some or all of its obligations under this Agreement through Affiliates; provided, that each Party shall remain responsible and be a guarantor of the performance by its Affiliates and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance.

Section 12.9 **Independent Contractors**. MTEM and Takeda each acknowledge that they shall be independent contractors and that the relationship between the Parties shall not constitute a partnership, joint venture, agency or any type of fiduciary relationship. Neither MTEM nor Takeda shall have the authority to make any statements, representations or commitments of any kind, or to take any action, which shall be binding on the other Party, without the prior consent of the other Party to do so.

Section 12.10 **Waiver and Non-Exclusion of Remedies**. The waiver by either Party of any right hereunder or the failure to perform or of a breach by the other Party shall not be deemed a waiver of any other right hereunder or of any other breach or failure by said other Party whether of a similar nature or otherwise. The rights and remedies provided herein are cumulative and do not exclude any other right or remedy provided by Applicable Law or otherwise available, except as expressly set forth herein.

Section 12.11 **Further Assurances**. Each Party shall execute such additional documents as are necessary to effect the purposes of this Agreement.

Section 12.12 **No Benefit to Third Parties**. Except as provided in Article X, the covenants and agreements set forth in this Agreement are for the sole benefit of the Parties hereto and their successors and permitted assigns and they shall not be construed as conferring any rights on any other parties.

Section 12.13 **Equitable Relief**. Each Party acknowledges and agrees that the restrictions set forth in Section 3.9 , Article VII and Article VIII are reasonable and necessary to protect the legitimate interests of the other Party and that such other Party would not have entered into this Agreement in the absence of such restrictions and that any breach or threatened breach of any provision of such Section or Articles may result in irreparable injury to such other Party for which there will be no adequate remedy at law. In the event of a breach or threatened

breach of any provision of such Section or Articles, the non-breaching Party shall be authorized and entitled to seek from any court of competent jurisdiction injunctive relief, whether preliminary or permanent, specific performance and an equitable accounting of all earnings, profits and other benefits arising from such breach, which rights shall be cumulative and in addition to any other rights or remedies to which such non-breaching Party may be entitled in law or equity. Both Parties agree to waive any requirement that the other (a) post a bond or other security as a condition for obtaining any such relief and (b) show irreparable harm, balancing of harms, consideration of the public interest or inadequacy of monetary damages as a remedy. Nothing in this Section 12.13 is intended or should be construed, to limit either Party's right to equitable relief or any other remedy for a breach of any other provision of this Agreement.

Section 12.14 **Counterparts**. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be signed or delivered by facsimile or electronically scanned signature page.

(*The remainder of this page has been intentionally left blank. The signature pages follows.*)

IN WITNESS WHEREOF, the Parties have executed this Development Collaboration and Exclusive Commercial License Agreement as of the Effective Date.

MOLECULAR TEMPLATES, INC.

By: /s/ Eric Poma

Name: Eric Poma

Title: CEO

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

MILLENNIUM PHARMACEUTICALS, INC.

By: /s/ Christophe Bianchi
Christophe Bianchi
President

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 1.1.51. Early Stage Program Plan

[***]

Schedule 1.1.132. Phase Ia Clinical Trial Plan and Budget

{Redacted Schedule 1.1.132 comprises 3 pages}

[***]

Schedule 1.1.162. Existing SLT-As

[***]

Schedule 1.1.164. Patent Rights and Inventions that cover SLT-A Technology

SLT-A TECHNOLOGY

[***]

Schedule 9.2.5. MTEM Background Patent Rights

SCHEDULE 9.2.5
MTEM BACKGROUND PATENT RIGHTS

Patent Application Serial Number	Title	Assignee	Filing Date	Status
[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]
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Schedule 9.2.8. Future MTEM In-Licenses

[To be updated by MTEM in the future as required under Section 9.2.8]

Schedule 9.2.11. SLT-As with respect to which MTEM or its Affiliates Control MTEM Background IP

Existing SLT-As are described in the following patent applications:

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Exhibit 11.5.3 Applicable Royalties and Milestones for Post-Termination License pursuant to Section 11.5.3.

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Exhibit 10.3

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

STATE OF TEXAS
COUNTY OF TRAVIS

This **CANCER RESEARCH GRANT CONTRACT** ("**Contract**") is by and between the Cancer Prevention and Research Institute of Texas ("**CPRIT**"), hereinafter referred to as the "**INSTITUTE**", acting through its Chief Executive Officer, and **Molecular Templates, Inc.**, hereinafter referred to as the "**RECIPIENT**", acting through its authorized signing official.

RECITALS

WHEREAS, pursuant to TEX. HEALTH & SAFETY CODE, Ch. 102, the INSTITUTE may make grants to public and private persons in this state for research into the causes and cures for all types of cancer in humans; facilities for use in research into the causes and cures for cancer; research to develop therapies, protocols, medical pharmaceuticals, or procedures for the cure or substantial mitigation of all types of cancer; and cancer prevention and control programs.

WHEREAS, Article III, Section 67 of the Texas Constitution expressly authorizes the State of Texas to sell general obligation bonds on behalf of the INSTITUTE and for the INSTITUTE to use the proceeds from the sale of the bonds for the purposes of cancer research and prevention programs in this state.

WHEREAS, the INSTITUTE issued a request for applications for RFA P-16-TXCO-2: Texas Company Product Development Research Awards on or about January 2016.

WHEREAS, pursuant to TEX. HEALTH & SAFETY CODE § 102.251, and after a review by the INSTITUTE's scientific research and prevention program committees, the INSTITUTE has approved a Grant (defined below) to be awarded to the RECIPIENT.

WHEREAS, to ensure that the Grant provided to the RECIPIENT pursuant to this Contract is utilized in a manner consistent with "Tex. Const. Article III, Section 67 and other laws, and in exchange for receiving such Grant, the RECIPIENT agrees to comply with certain conditions and deliver certain performance.

WHEREAS, the RECIPIENT and the INSTITUTE desire to set forth herein the provisions relating to the awarding of such monies and the disbursement thereof to the RECIPIENT.

IN CONSIDERATION of the Grant and the premises, covenants, agreements, and provisions contained in this Contract, the parties agree to the following terms and conditions:

Article I
DEFINITIONS

The following terms shall have the following meaning throughout this Contract and any Attachments and amendments. Other terms may be defined elsewhere in this Contract.

(1) **Collaborator** - any entity other than the RECIPIENT having one or more personnel participating in the Project and (a) designated as a collaborator in the application submitted by the RECIPIENT requesting the Grant funds awarded by the INSTITUTE, or (b) otherwise approved in writing as a collaborator by the INSTITUTE.

(2) **Contractor** - any person or entity, other than a Collaborator or the RECIPIENT (or their respective personnel), who is contracted by the RECIPIENT to perform activities for the Project.

(3) **Equipment** - an article of tangible, nonexpendable personal property having a useful life of more than one year and an acquisition cost of $5,000 or more per unit.

(4) **Grant** - the funding assistance authorized by TEX. HEALTH & SAFETY CODE, Ch. 102 in the amount specified in Section 2.01 and awarded by the INSTITUTE to the RECIPIENT to carry out the Project pursuant to the terms and conditions of this Contract.

(5) **Indirect Costs** - the expenses of doing business that are not readily identified with a particular grant, contract, project, function or activity, but are necessary for the general operation of the organization or the performance of the organization's activities.

(6) **Institute-Funded Activity** - all aspects of work conducted on or as part of the Project.

(7) **Non-Profit Organization** - a university or other institution of higher education or an organization of the type described in 501(c)(3) of the Internal Revenue Code of 1986, as amended (26 U.S.C. 501 (c)(3)) and exempt from taxation under 501 (a) of the Internal Revenue Code (26 U.S.C. 501 (a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

(8) **Principal Investigator/Program Director** - the individual designated by the RECIPIENT to direct the Project who is principally responsible and accountable to the RECIPIENT and the INSTITUTE for the proper conduct of the Project. References herein to "Principal Investigator/Program Director" include Co-Principal Investigators or Co-Program Directors as well. The Principal Investigator/Program Director and Co-Principal Investigators or Co-Program Directors are set forth on Attachment A.

(9) **Project** - the activities specified or generally described in the Scope of Work or otherwise in this Contract (including without limitation any of the Attachments to the Contract) that are approved by the INSTITUTE for funding, regardless of whether the INSTITUTE funding constitutes all or only a portion of the financial support necessary to carry them out.

(10) **Recipient Personnel** - The RECIPIENT's Principal Investigator/Program Director and RECIPIENT's employees and consultants working on the Project.

Article II
GRANT AWARD

Section 2.01 **Award of Monies**. In accordance with the provisions of this Contract and any applicable agency administrative rules, the INSTITUTE shall disburse the proceeds of the Grant to the RECIPIENT in an amount not to exceed **$ 15,200,000** to be used solely for the Project. This award is subject to compliance with the Scope of Work and demonstration of progress towards achievement of the milestones set forth in Section 2.02. This Grant is not intended to be a loan of money.

Section 2.02 **Scope of Work and Milestones**. The RECIPIENT shall perform the Project in accordance with this Agreement and as outlined in Application **DP160071** submitted by the RECIPIENT and approved by the INSTITUTE. The RECIPIENT shall conduct the Project within the State of Texas with Texas-based employees, Contractors and/or Collaborators unless otherwise specified in the Scope of Work or the Approved Budget. The INSTITUTE and the RECIPIENT hereby adopt the terms of Attachment A in their entirety, incorporate them as if fully set forth herein, and agree that the Project description, goals, timeline and milestones included as Attachment A accurately reflect the Scope of Work of the Project to be undertaken by the RECIPIENT (the "**Scope of Work**") and the milestones expected to be achieved. RECIPIENT and the INSTITUTE mutually agree that the outcome of scientific research is unpredictable and cannot be guaranteed. The RECIPIENT shall use commercially reasonable efforts to complete the goals of the Project pursuant to the timeline reflected in Attachment A and shall timely notify

the INSTITUTE if circumstances occur that materially and adversely affect completion thereof. Modifications, if any, to the Scope of Work must be agreed to in writing by both parties as set forth in Section 2.06 "Amendments and Modifications" herein. Material changes to the Scope of Work include, but are not limited to, changes in key personnel involved with the Project, the site of the Project, and the milestones expected to be achieved.

Section 2.03 Contract Term. The Contract shall be effective as of **December 01, 2016** (the "**Effective Date**") and terminate on **November 30, 2019** or in accordance with the Contract termination provisions set forth in Article VIII herein, whichever shall occur first (the "**Termination Date**"). Unless otherwise approved by the INSTITUTE as evidenced by written communication from the INSTITUTE to the RECIPIENT and appended to the Contract, Grant funds distributed pursuant to the Contract shall be expended no earlier than the Effective Date or subsequent to the Termination Date. If, as of the Termination Date, the RECIPIENT has not used Grant money awarded by the INSTITUTE for permissible services, expenses, or costs related to the Project and has not received approval from the INSTITUTE for a no cost extension to the contract term pursuant to Section 3.11 "Carry Forward of Unspent Funds and No Cost Extension" herein, then the RECIPIENT shall not be entitled to retain such unused Grant funds from the INSTITUTE. Certain obligations as set forth in Section 9.09 of this Contract shall extend beyond the Termination Date.

Section 2.04 Contract Documentation. The Contract between the INSTITUTE and the RECIPIENT shall consist of this final, executed Contract, including the following Attachments to the Contract, all of which are hereby incorporated by reference:

(a) Attachment A – Project Description, Goals and Timeline

(b) Attachment B – Approved Budget, including changes approved by the INSTITUTE subsequent to execution of the Contract.

(c) Attachment C – Assurances and Certifications

(d) Attachment D – Intellectual Property and Revenue Sharing

(e) Attachment E – Reporting Requirements

(f) Attachment F – Approved Amendments to Contract, excluding budget amendments reflected in Attachment B.

Section 2.05 Entire Agreement. All agreements, covenants, representations, certifications and understandings between the parties hereto concerning this Contract have been merged into this written Contract. No prior contemporaneous representation, agreement or understanding, express or implied, oral or otherwise, of the parties or their agents that may have related to the subject matter hereof in any way shall be valid or enforceable unless embodied in this Contract.

Section 2.06 Amendments and Modifications. Requested amendments and modifications to the Contract must be submitted in writing to the INSTITUTE for review and approval (such approval shall not be unreasonably withheld.) Amendments and modifications (including alterations, additions, deletions, assignments and extensions) to the terms of this Contract shall be made solely in writing and shall be executed by both parties. The approved amendment shall be reflected in Attachment A if it is change to the Scope of Work, or as part of Attachment B if it is a budget amendment, or as part of Attachment F for all other changes.

Section 2.07 Relationship of the Parties. The RECIPIENT shall be responsible for the conduct of the Project that is the subject of this Contract and shall direct the activities and at all times be responsible for the performance of Recipient Personnel, Collaborators, Contractors and other agents. The INSTITUTE does not assume responsibility for the conduct of the Project or any Institute-Funded Activity that is the subject of this Contract. The INSTITUTE and the RECIPIENT shall perform their respective obligations under this Contract as independent contractors and

not as agents, employees, partners, joint venturers, or representatives of the other party. Neither party is permitted to make representations or commitments that bind the other party.

Section 2.08 **Subcontracting**. Any and all subcontracts entered into by the RECIPIENT in relation to the performance of activities under the Project shall be in writing and shall be subject to the requirements of this Contract. Without in any way limiting the foregoing, the RECIPIENT shall enter into and maintain a written agreement with each such permitted Contractor with terms and conditions sufficient to ensure the RECIPIENT fully complies with the terms of this Contract, including without limitation the terms set forth in Attachments C, D, and E. The RECIPIENT agrees that it shall be responsible to the INSTITUTE for the performance of and payment to any Contractor. Any reimbursements made by the RECIPIENT to a Contractor shall be made in accordance with the applicable provisions of TEX. GOV'T. CODE, Ch. 2251.

Section 2.09 **Transfer or Assignment by the Recipient**. This Contract is not transferable or otherwise assignable by the RECIPIENT, whether by operation of law or otherwise, without the prior written consent of the INSTITUTE, except as provided in this Section 2.09. Any such attempted transfer or assignment without the prior written consent of the INSTITUTE (except as provided in this Section 2.09) shall be null, void and of no effect. For purposes of this section, an assignment or transfer of this Contract by the RECIPIENT in connection with a merger, transfer or sale of all or substantially all of the RECIPIENT's assets or business related to this Contract or a consolidation, change of control or similar transaction involving the RECIPIENT shall not be deemed to constitute a transfer or assignment, so long as such action does not impair or otherwise negatively impact the revenue sharing terms in Attachment D. Nothing herein shall be interpreted as superseding the requirement that the Project be undertaken in Texas with Texas-based employees.

If the Principal Investigator leaves the employment of the RECIPIENT or is replaced by the RECIPIENT for any reason during the course of the Grant with someone who is not already designated a co-Principal Investigator in the Application, the RECIPIENT shall notify the INSTITUTE prior to replacing the Principal Investigator. Written approval by the INSTITUTE is required for the replacement of the Principal Investigator with someone who is not already a co-Principal Investigator in the Application, which approval shall not be unreasonably withheld, conditioned or delayed.

Section 2.10 **Representations and Certifications**. The RECIPIENT represents and certifies to the best of its knowledge and belief to the INSTITUTE as follows:

(a) It has legal authority to enter into, execute, and deliver this Contract, and all documents referred to herein, and it has taken all actions necessary to its execution and delivery of such documents;

(b) It will comply with all of the terms, conditions, provisions, covenants, requirements, and certifications in this Contract, applicable statutory provisions, agency administrative rules, and all other documents incorporated herein by reference;

(c) It has made no material false statement or misstatement of fact in connection with this Contract and its receipt of the Grant, and all of the information it previously submitted to the INSTITUTE or that it is required under this Contract to submit to the INSTITUTE relating to the Grant or the disbursement of any of the Grant is and will be true and correct at the time such statement is made;

(d) It is in compliance in all material respects with provisions of its charter and of the laws of the State of Texas, and of the laws of the jurisdiction in which it was formed, and (i) there are no actions, suits, or proceedings pending, or threatened, before any judicial body or governmental authority against or affecting its ability to enter into this Contract, or any document referred to herein, or to perform any of the material acts required of it in such documents and (ii) it is not in default with respect to any order, writ, injunction, decree, or demand of any court or any governmental authority which would impair its ability to enter into this Contract, or any document referred to herein, or to perform any of the material acts required of it in such documents;

(e) Neither the execution and delivery of this Contract or any document referred to herein, nor compliance with any of the terms, conditions, requirements, or provisions contained in this Contract or any documents referred to herein, is prevented by, is a breach of, or will result in a breach of, any term, condition, or provision of any agreement or document to which it is now a party or by which it is bound; and

(f) It shall furnish such satisfactory evidence regarding the representations and certifications described herein as may be required and requested by the INSTITUTE from time to time.

Section 2.11 Reliance upon Representations. By awarding the Grant and executing this Contract, the INSTITUTE is relying, and will continue to rely throughout the term of this Contract, upon the truthfulness, accuracy, and completeness of the RECIPIENT's written assurances, certifications and representations. Moreover, the INSTITUTE would not have entered into this Contract with the RECIPIENT but for such written assurances, certifications and representations. The RECIPIENT acknowledges that the INSTITUTE is relying upon such assurances, certifications and representations and acknowledges their materiality and significance.

Section 2.12 Contingent upon Availability of Grant Funds. This Contract is contingent upon funding being available for the term of the Contract and the RECIPIENT shall have no right of action against the INSTITUTE in the event that the INSTITUTE is unable to perform its obligations under this Contract as a result of the suspension, termination, withdrawal, or failure of funding to the INSTITUTE or lack of sufficient funding of the INSTITUTE for this Contract. If funds become unavailable to the INSTITUTE during the term of the Contract, Section 8.01(c) shall apply. For the sake of clarity, and except as otherwise provided by this Contract, if this Contract is not funded, then both parties are relieved of all of their obligations under this Contract. The INSTITUTE acknowledges and agrees that the Project is a multiyear project subject to Tex. Health & Safety Code, Ch. 102, Section 102.257.

Section 2.13 Confidentiality of Documents and Information. In connection with work contemplated for the Project or pursuant to complying with various provisions of this Contract, the RECIPIENT may disclose its confidential business, financial, technical, scientific information and other information to the INSTITUTE ("Confidential Information"). To assist the INSTITUTE in identifying such information, the RECIPIENT shall mark or designate the information as "confidential," provided however that the failure to so designate does not operate as a waiver to protections provided by applicable law or this Contract. The INSTITUTE shall use no less than reasonable care to protect the confidentiality of the Confidential Information to the fullest extent permissible under the Texas Public Information Act, Texas Government Code, Chapter 552 (the "**TPIA**"), and, except as otherwise provided in the TPIA to prevent the disclosure of the Confidential Information to third parties for a period of time equal to three (3) years from the termination of the contract, unless the INSTITUTE and the RECIPIENT agree in writing to extend such time period, provided that this obligation shall not apply to information that:

(a) was in the public domain at the time of disclosure or later became part of the public domain through no act or omission of the INSTITUTE in breach of this Contract;

(b) was lawfully disclosed to the INSTITUTE by a third party having the right to disclose it without an obligation of confidentiality;

(c) was already lawfully known to the INSTITUTE without an obligation of confidentiality at the time of disclosure;

(d) was independently developed by the INSTITUTE without using or referring to the RECIPIENT's Confidential Information; or

(e) is required by law or regulation to be disclosed.

The INSTITUTE shall hold the Confidential Information in confidence, shall not use such Confidential Information except as provided by the terms of this Contract, and shall not disclose such Confidential Information to third parties without the prior written approval of the RECIPIENT or as otherwise allowed by the terms of the Contract. Subject

in all respects to the terms of this Contract and the TPIA, the INSTITUTE has the right to use and disclose the Confidential Information reasonably in connection with the exercise of its rights under the Contract.

In the event that the INSTITUTE is requested or required (by oral questions, interrogatories, requests for information or documents in legal proceedings, subpoena, civil investigative demand or other similar process by a court of competent jurisdiction or by any administrative, legislative, regulatory or self-regulatory authority or entity) to disclose any Confidential Information, the INSTITUTE shall provide the RECIPIENT with prompt written notice of any such request or requirement so that the RECIPIENT may seek a protective order or other appropriate remedy. If, in the absence of a protective order or other remedy, the INSTITUTE is nonetheless legally compelled to make any such disclosure of Confidential Information to any person, the INSTITUTE may, without liability hereunder, disclose only that portion of the Confidential Information that is legally required to be disclosed, provided that the INSTITUTE will use reasonable efforts to assist the RECIPIENT, at the RECIPIENT's expense, in obtaining an appropriate protective order or other reliable assurance that confidential treatment will be accorded the Confidential Information. To the extent that such Confidential Information does not become part of the public domain by virtue of such disclosure, it shall remain Confidential Information hereunder.

Article III
DISBURSEMENT OF GRANT AWARD PROCEEDS

Section 3.01 Payment of Grant Award Proceeds. The INSTITUTE will advance Grant award proceeds upon request by the RECIPIENT, consistent with the amounts and schedule as provided in Attachment B. If the RECIPIENT does not request or the Oversight Committee does not authorize advancement of funds for some or the entire Grant award proceeds, disbursement of Grant award proceeds for services performed and allowable expenses and costs incurred pursuant to the Scope of Work will be on a reimbursement basis. To the extent that completion of certain milestones is associated with a specific tranche of funding as reflected in the Scope of Work, those milestones shall be accomplished before funding may be provided for next tranche of funding. The INSTITUTE reserves the right to terminate the Contract should a key milestone not be met.

Section 3.02 Requests for Reimbursement and Quarterly Financial Status Reports. If the RECIPIENT does not receive an advance disbursement of Grant proceeds, the RECIPIENT's requests for reimbursement shall be made on INSTITUTE Form 269a (Financial Status Report). If the RECIPIENT has elected to receive an advance disbursement of Grant proceeds, RECIPIENT shall submit INSTITUTE Form 269a (Financial Status Report) to document all costs and allowable expenses paid with Grant proceeds. The RECIPIENT shall submit the INSTITUTE Form 269a quarterly to the INSTITUTE within 90 days following the end of the quarter covered by the bill. A final INSTITUTE Form 269a shall be submitted by RECIPIENT not later than 90 days after the Termination Date. An extension of time for submission deadlines specified herein must be expressly authorized in writing by the INSTITUTE.

Section 3.03 Actual Costs and Allowable Expenses. Because the Approved budget for the Project(s) as set forth in Attachment B is only an estimate, the parties agree that the RECIPIENT's billings under this Contract will reflect the actual costs and expenses incurred in performing the Project(s), regardless of the Approved Budget, up to the total contracted amount specified in Section 2.01 "Award of Monies." The RECIPIENT shall use Grant proceeds only for allowable expenses consistent with state law and agency administrative rules. Allowable expenses for the Project(s) shall be only as outlined in the Approved Budget and any modifications to same.

Section 3.04 Travel Expenses. Reimbursement for travel expenditures shall be in accordance with the Approved Budget. Prior written approval from the INSTITUTE must be obtained before travel that exceeds the amount included in the Approved Budget commences. Failure to obtain such prior written approval shall result in such excess travel costs constituting expenses that may not be taken into account for the purposes of calculating expenditure of Grant funds under this Contract.

Section 3.05 Budget Modifications. The total Approved Budget and the assignment of costs may be adjusted based on implementation of the Scope of Work, spending patterns, and unexpended funds, but only by an amendment to the Approved Budget. In no event shall an amendment to the Approved Budget result in payments in

excess of the aggregate amount specified in Section 2.01 “Award of Monies” or in approved supplemental funding for the Project, if any. The RECIPIENT may make transfers between or among lines within budget categories without prior written approval provided that:

(a) The total dollar amount of all changes of any single line item within budget categories (individually and in the aggregate) is less than 10% of the total Approved Budget;

(b) The transfer will not increase or decrease the total Approved Budget;

(c) The transfer will not materially change the nature, performance level, or Scope of Work of the Project; and

(d) The RECIPIENT submits a revised copy of the Approved Budget including a narrative justification of the changes prior to incurring costs in the new category.

All other budget changes or transfers require the INSTITUTE’s express prior written approval. Transfer of funds between categories in the Project’s Approved Budget may be allowed if requests are in writing, fit within the Scope of Work and the total Approved Budget, are beneficial to the achievement of the objectives of the Project, and appear to be an efficient, effective use of the INSTITUTE’s funds.

Section 3.06 Withholding Payment. The INSTITUTE may withhold Grant award proceeds from RECIPIENT if required Financial Status Reports (Form 269a) are not on file for previous quarters or for the final period, if material program requirements are not met and remain uncured after a reasonable time period to cure, if the RECIPIENT is in breach of any material term of this Contract, or in accordance with provisions of this Contract as well as applicable state or federal laws, regulations or administrative rules, and the breach remains uncured after a reasonable time period to cure. The INSTITUTE shall have the right to withhold all or part of any future payments to the RECIPIENT to offset any prior advance payments made to the RECIPIENT for ineligible expenditures that have not been refunded to the INSTITUTE by the RECIPIENT.

Section 3.07 Grant Funds as Supplement to Budget. The RECIPIENT shall use the Grant proceeds awarded pursuant to this Contract to supplement its overall budget. These funds will in no event supplant existing funds currently available to the RECIPIENT that have been previously budgeted and set aside for the Project. The RECIPIENT will not bill the INSTITUTE for any costs under this Contract that also have been billed or should have been billed to any other funding source.

Section 3.08 Buy Texas. The RECIPIENT shall apply good faith efforts to purchase goods and services from suppliers in Texas to the extent reasonably possible, to achieve a goal of more than 50 percent of such purchases from suppliers in Texas.

Section 3.09 Historically Underutilized Businesses. The RECIPIENT shall use reasonable efforts to purchase materials, supplies or services from a Historically Underutilized Business (HUB). The Texas Procurement and Support Services website will assist in finding HUB vendors (http://www.window.state.tx.us/procurement.) The RECIPIENT shall complete a HUB report with each annual report submitted to the INSTITUTE in accordance with Attachment E.

Section 3.10 Limitation on Use of Grant Award Proceeds to Pay Indirect Costs. The RECIPIENT shall not spend more than five percent of the Grant award proceeds for Indirect Costs.

Section 3.11 Carry Forward of Unspent Funds and No Cost Extension. RECIPIENT may request to carry forward unspent funds into the budget for the next year. Carryover of unspent funds must be specifically approved by the INSTITUTE. The INSTITUTE may approve a no cost extension for the Contract for a period not to exceed six (6) months after the Termination Date if additional time beyond the Termination date is required to ensure adequate completion of the approved project. The Contract must be in good fiscal and programmatic standing. All terms and conditions of the Contract shall continue during any extension period and if such extension is approved,

notwithstanding Section 2.03, all references to the "Termination Date" shall be deemed to mean the date of expiration of such extension period.

Article IV
AUDITS AND INSPECTIONS

Section 4.01 **Record Keeping**. The RECIPIENT, each Collaborator whose costs are funded in all or in part by the Grant shall maintain or cause to be maintained books, records, documents and other evidence (electronic or otherwise) pertaining in any way to its performance under and compliance with the terms and conditions of this Contract ("**Records**"). The RECIPIENT, each Collaborator and each Contractor shall use, or shall cause the entity which is maintaining such Records to use generally accepted accounting principles in the maintenance of such Records, and shall retain or require to be retained all of such Records for a period of three (3) years from the Termination Date of the Contract.

Section 4.02 **Audits**. Upon request and with reasonable notice, the RECIPIENT, each Collaborator and each Contractor whose costs are charged to the Project shall allow, or shall cause the entity which is maintaining such items to allow, the INSTITUTE, or auditors working on behalf of the INSTITUTE, including the State Auditor and/or the Comptroller of Public Accounts for the State of Texas, to review, inspect, audit, copy or abstract all of its Records during regular working hours. Acceptance of funds directly under the Contract or indirectly through a subcontract under the Contract constitutes acceptance of the authority of the INSTITUTE, or auditors working on behalf of the INSTITUTE, including the State Auditor and/or the Comptroller of Public Accounts, to conduct an audit or investigation in connection with those funds for a period of three (3) years from the Termination Date of the Contract.

Notwithstanding the foregoing, any RECIPIENT expending $500,000 or more in federal or state awards during its fiscal year shall obtain either an annual single audit or a program specific audit. A RECIPIENT expending funds from only one state program may elect to obtain a program specific audit in accordance with Office of Management and Budget (OMB) Circular A-133 or with the State of Texas Uniform Grant Management Standards (UGMS). A single audit is required if funds from more than one federal or state program are spent by the RECIPIENT. The audited time period is the RECIPIENT's fiscal year, not the INSTITUTE funding period.

Section 4.03 **Inspections**. In addition to the audit rights specified in Section 4.02 "Audits", the INSTITUTE shall have the right to conduct periodic onsite inspections within normal working hours and on a day and a time mutually agreed to by the parties, to evaluate the Institute-Funded Activity. The RECIPIENT shall fully participate and cooperate in any such evaluation efforts.

Section 4.04 **On-going Obligation to Submit Requested Information**. The RECIPIENT shall, submit other information related to the Grant to the INSTITUTE as may be reasonably requested from time-to-time by the INSTITUTE, by the Legislature or by any other funding or regulatory bodies covering the RECIPIENT's activities under this Contract.

Section 4.05 **Duty to Resolve Deficiencies**. If an audit and/or inspection under this Article IV finds there are deficiencies that should be remedied, then the RECIPIENT shall resolve and/or cure such deficiencies within a reasonable time frame specified by the INSTITUTE. Failure to do so shall constitute an Event of Default pursuant to Section 8.03 "Event of Default." Upon the RECIPIENT'S request, the parties agree to negotiate in good faith, specific extensions so that the RECIPIENT can cure such deficiencies.

Section 4.06 **Repayment of Grant Proceeds for Improper Use**. In no event shall RECIPIENT retain Grant funds that have not been used by the RECIPIENT for purposes for which the Grant was intended or in violation of the terms of this Contract. The RECIPIENT shall repay any portion of Grant proceeds used by the RECIPIENT for purposes for which the Grant was not intended, as determined by the final results of an audit conducted pursuant to the provisions of this Contract. Unless otherwise expressly provided for in writing and appended to this Contract, the repayment shall be made to the INSTITUTE no later than forty-five (45) days upon a written request by the INSTITUTE specifying the amount to be repaid and detailing the basis upon which such request is being made and

the amount shall include interest calculated at an amount not to exceed five percent (5%) annually. The RECIPIENT may request that the INSTITUTE waive the interest, subject in all cases to the INSTITUTE'S sole discretion.

Section 4.07 Repayment of Grant Proceeds for Relocation Outside of Texas. Unless waived by a vote of the Oversight Committee, the RECIPIENT shall repay the INSTITUTE all Grant proceeds disbursed to RECIPIENT in the event that RECIPIENT relocates its principal place of business outside of the State during the Contract term or within 3 years after the final payment of the Grant funds is made by the INSTITUTE.

Article V
ASSURANCES AND CERTIFICATIONS

Adoption of Attachment C. The INSTITUTE and the RECIPIENT hereby adopt the terms of Attachment C in their entirety, incorporate them as if fully set forth herein, and agree to perform and be bound by all such terms.

Article VI
INTELLECTUAL PROPERTY AND REVENUE SHARING

Adoption of Attachment D. The INSTITUTE and the RECIPIENT hereby adopt the terms of Attachment D in their entirety, incorporate them as if fully set forth herein, and agree to perform and be bound by all such terms.

Article VII
REPORTING

Adoption of Attachment E. The INSTITUTE and the RECIPIENT hereby adopt the terms of Attachment E in their entirety, incorporate them as if fully set forth herein, and agree to perform and be bound by all such terms.

Article VIII
EARLY TERMINATION AND EVENT OF DEFAULT

Section 8.01 Early Termination of Contract. This Contract may be terminated prior to the Termination Date specified in Section 2.03 "Contract Term" by:

(a) Mutual written consent of all parties to this Contract; or

(b) The INSTITUTE for an Event of Default (defined in Section 8.03) by the RECIPIENT; or

(c) The INSTITUTE if allocated funds should become legally unavailable during the Contract period and the INSTITUTE is unable to obtain additional funds for such purposes; or

(d) The RECIPIENT for convenience.

Section 8.02 Repayment of Grant Proceeds upon Early Termination. The INSTITUTE may require the RECIPIENT to repay some or all of the disbursed Grant proceeds in the event of early termination under 8.01 (d) above or under Section 8.01(b) above, to the extent such Event of Default resulted from Grant funds being expended in violation of this Contract. To the extent that the INSTITUTE exercises this option, the INSTITUTE shall provide written notice to the RECIPIENT stating the amount to be repaid, applicable interest calculated not to exceed five percent (5%) annually, and the schedule for such repayment. The RECIPIENT may request that the INSTITUTE waive the interest, subject in all cases to the INSTITUTE'S sole discretion. In no event shall the RECIPIENT retain Grant funds that have not been used by the RECIPIENT for purposes for which the Grant was intended.

Section 8.03 Event of Default. The following events shall, unless expressly waived in writing by the INSTITUTE or fully cured by the RECIPIENT pursuant to the provisions herein, constitute an event of default (each, an "**Event of Default**"):

(a) The RECIPIENT's failure, in any material respect, to conduct the Project in accordance with the approved Scope of Work and to demonstrate progress towards achieving the milestones set forth in Section 2.02;

(b) The RECIPIENT's failure to conduct the Project within the State of Texas to the extent required under this Contract unless as otherwise specified in the application, Scope of Work or Approved Budget;

(c) The RECIPIENT's failure to fully comply, in any material respect, with any provision, term, condition, covenant, representation, certification, or warranty contained in this Contract or any other document incorporated herein by reference;

(d) The RECIPIENT's failure to comply with any applicable federal or state law, administrative rule, regulation or policy with regard to the conduct of the Project;

(e) The RECIPIENT's material misrepresentation or false covenant, representation, certification, or warranty made by RECIPIENT herein, in the Grant application, or in any other document furnished by RECIPIENT pursuant to this Contract that was misleading at the time that it was made; or

(f) The RECIPIENT ceases its business operations, has a receiver appointed for all or substantially all of its assets, makes a general assignment for the benefit of creditors, is declared insolvent by a court of competent jurisdiction or becomes the subject, as a debtor, of a proceeding under the federal bankruptcy code, which such proceedings are not dismissed within ninety (90) days after filing.

Section 8.04 Notice Required. If the RECIPIENT intends to terminate pursuant to Section 8.01(d) "Early Termination of Contract", it shall provide written notice to the INSTITUTE pursuant to the notice provisions of Section 9.21 "Notices" no later than thirty (30) days prior to the intended date of termination.

If the INSTITUTE intends to terminate for an Event of Default under Section 8.01(b) by the RECIPIENT, as described in Section 8.03 "Event of Default", the INSTITUTE shall provide written notice to the RECIPIENT pursuant to Section 9.21 "Notices" and shall include a reasonable description of the Event of Default and, if applicable, the steps necessary to cure such Event of Default. Upon receiving notice from the INSTITUTE, the RECIPIENT shall have thirty (30) days beginning on the day following the receipt of notice to cure the Event of Default. Upon request, the INSTITUTE may provide an extension of time to cure the Event of Default(s) beyond the thirty (30) day period specified herein so long as the RECIPIENT is using reasonable efforts to cure and is making reasonable progress in curing such Event(s) of Default. The extension shall be in writing and appended to the Contract. If the RECIPIENT is unable or fails to timely cure an Event of Default, unless expressly waived in writing by the INSTITUTE, this Contract shall immediately terminate as of the close of business on the final day of the allotted cure period without any further notice or action by the INSTITUTE required. **In addition, and notwithstanding the foregoing, the INSTITUTE and the RECIPIENT agree that certain events that cannot be cured shall, unless expressly waived in writing by the INSTITUTE, constitute a final Event of Default under this Contract and this Contract shall terminate immediately upon the INSTITUTE giving the RECIPIENT written "Notice of Event of Default and FINAL TERMINATION."**

In the event that the INSTITUTE terminates the Contract under Section 8.01(c) above because allocated funds become legally unavailable during the Contract period, the INSTITUTE shall immediately provide written notification to the RECIPIENT of such fact pursuant to Section 9.21 "Notices." The Contract is terminated upon the RECIPIENT's receipt of that notification, subject to Section 9.09 "Survival of Terms."

Section 8.05 Duty to Report Event of Default The RECIPIENT shall notify the INSTITUTE in writing pursuant to Section 9.21 "Notices", promptly and in no event more than (30) days after it obtains knowledge of the

occurrence of any Event of Default. The RECIPIENT shall include a statement setting forth reasonable details of each Event of Default and the action which the RECIPIENT proposes to take with respect thereto.

Section 8.06 Obligations/Liabilities Affected by Early Termination. The RECIPIENT shall not incur new obligations that otherwise would have been paid for using Grant funds after the receipt of notice as provided by Section 8.04 "Notice Required", unless expressly permitted by the INSTITUTE in writing, and shall cancel as many outstanding obligations as possible. The INSTITUTE shall not owe any fee, penalty or other amount for exercising its right to terminate the Contract in accordance with Section 8.01. In no event shall the INSTITUTE be liable for any services performed, or costs or expenses incurred, after the Termination Date of the Contract. Early termination by either party shall not nullify obligations already incurred, including the RECIPIENT's revenue sharing obligations as set forth in Attachment D, or the performance or failure to perform obligations prior to the Termination Date.

Section 8.07 Interim Remedies. Upon receipt by the RECIPIENT of a notice of Event of Default, and at any time thereafter until such Event of Default is cured to the satisfaction of the INSTITUTE or this Contract is terminated, the INSTITUTE may enforce any or all of the following remedies (such rights and remedies being in addition to and not in lieu of any rights or remedies set forth herein):

(a) The INSTITUTE may refrain from disbursing any amount of the Grant funds not previously disbursed; provided, however, the INSTITUTE may make such a disbursement after the occurrence of an Event of Default without thereby waiving its rights and remedies hereunder;

(b) The INSTITUTE may enforce any additional remedies it has in law or equity.

The rights and remedies herein specified are cumulative and not exclusive of any rights or remedies that the INSTITUTE would otherwise possess.

Article IX
MISCELLANEOUS

Section 9.01 Uniform Grant Management Standards. Unless otherwise provided herein, the RECIPIENT agrees that the Uniform Grant Management Standards (UGMS), developed by the Governor's Budget and Planning Office as directed under the Uniform Grant Management Act of 1981, TEX. GOVT. CODE, Ch. 783, apply as additional terms and conditions of this Contract and that the standards are adopted by reference in their entirety. If there is a conflict between the provisions of this Contract and UGMS, the provisions of this Contract will prevail unless expressly stated otherwise.

Section 9.02 Management and Disposition of Equipment. During the term of this Contract, the RECIPIENT may use Grant funds to purchase Equipment to be used for the authorized purpose of the Project, subject to the conditions set forth below. Unless otherwise provided herein, title to Equipment shall vest in the RECIPIENT upon termination of the Contract.

(a) The INSTITUTE must authorize the acquisition in advance and in writing but an acquisition is deemed authorized if included in the Approved Budget for the Project;

(b) Equipment purchased with Grant funds must stay within the State of Texas;

(c) Equipment purchased with Grant funds must be materially deployed to the uses and purposes related to the Project;

(d) In the event the RECIPIENT is indemnified, reimbursed or otherwise compensated for any loss of, destruction of, or damage to the Equipment purchased using Grant funds, it shall use the proceeds to repair or replace said Equipment;

(e) Equipment may be exchanged (trade-in) or sold without the prior written approval of the INSTITUTE if the proceeds thereof shall be applied to the acquisition cost of replacement Equipment;

(f) The RECIPIENT may use its own property management standards and procedures provided that it observes the terms of UGMS, A-102, in all material respects;

(g) The title or ownership of the Equipment shall not be encumbered for purposes other than the Project nor or transferred other than to a permitted assignee of this Contract, without the prior written approval of the INSTITUTE;

(h) If the original or replacement Equipment is no longer needed for the originally authorized purpose or for other activities supported by the INSTITUTE, the RECIPIENT shall request disposition instructions from the INSTITUTE and, upon receipt, shall fully comply therewith; and

(i) If this Contract is terminated early pursuant to Section 8.01(b), (d), (e), or (f) above, the INSTITUTE shall determine the final disposition of Equipment purchased with Grant award money.

Section 9.03 Supplies and Other Expendable Property. The RECIPIENT shall classify as materials, supplies and other expendable property the allowable unit acquisition cost of such property under $5,000 necessary to carry out the Project. Title to supplies and other expendable property shall vest in the RECIPIENT upon acquisition.

Section 9.04 Acknowledgement of Grant Funding and Publicity. The parties agree to the following terms and conditions regarding acknowledging Grant funding and publicity:

(a) The parties agree to fully cooperate and coordinate with each other in connection with all press releases and publications regarding the award of the Grant, the execution of the Contract and the Institute-Funded Activities.

(b) The RECIPIENT shall notify the INSTITUTE's Information Specialist or similar personnel at least three business days prior to any press releases, advertising, publicity, use of CPRIT logo, or other promotional activities that pertain to the Project or any Institute-Funded Activity. In the event that the INSTITUTE wishes to participate in a joint press release, the RECIPIENT shall coordinate and cooperate with the INSTITUTE's Information Specialist or similar personnel to develop a mutually agreeable joint press release.

(c) Consistent with the goal of encouraging development of scientific breakthroughs and dissemination of knowledge, publication or presentation of scholarly materials is expected and encouraged. The RECIPIENT may publish in scholarly journals or other peer-reviewed journals (including graduate theses and dissertations) and may make presentations at scientific meetings without prior notice to or consent of the INSTITUTE, except as may otherwise be set forth in this Contract. The RECIPIENT shall promptly notify the INSTITUTE when any scholarly presentations or publications have been accepted for public disclosure and shall provide the INSTITUTE with final copies of all such accepted presentations and publications. The RECIPIENT shall acknowledge receipt of the INSTITUTE funding in all publications, presentations, press releases and other materials regarding the work associated with the Institute-Funded Activities. The RECIPIENT shall promptly submit an electronic version of all published manuscripts to PubMed Central in accordance with Section 9.05 "Public Access to Research Results."

(d) When grant funds are used to prepare print or visual materials for educational or promotional purposes for the general public (e.g., patients), and excluding presentations and publications discussed above in subsection (c), the RECIPIENT shall provide a copy of such materials to the

INSTITUTE at least ten (10) days prior to printing. The RECIPIENT shall also acknowledge receipt of the INSTITUTE funding on all such materials including, but not limited to, brochures, pamphlets, booklets, training fliers, project websites, videos and DVDs, manuals and reports, as well as on the labels and cases for audiovisual or videotape/DVD presentations.

Section 9.05 Public Access to Results of Institute-Funded Activities. The RECIPIENT shall submit an electronic version of its final peer-reviewed journal manuscripts that arise from Grant funds to the digital archive National Library of Medicine's PubMed Central upon acceptance for publication. These papers must be accessible to the public on PubMed no later than 12 months after publication. This policy is subject to the terms of Attachment D and does not supplant applicable copyright law. For clarity, this policy is not intended to require the RECIPIENT to make a disclosure at a time or in any manner that would cause the RECIPIENT to abandon, waive or disclaim any intellectual property rights that it is obligated to protect pursuant to the terms of Attachment D.

Section 9.06 Work to be Conducted in State. The RECIPIENT agrees that it will use reasonable efforts to direct that any new or expanded preclinical testing, clinical trials, commercialization or manufacturing that is part of or relating to any Institute-Funded Activities take place in the State of Texas, including the establishment of facilities to meet this purpose. If the RECIPIENT decides not to conduct such work in the State of Texas, the RECIPIENT shall provide a prior written explanation to the INSTITUTE detailing the RECIPIENT's reasons for conducting the work outside of the State of Texas and the RECIPIENT's efforts made to conduct the work in the State of Texas.

Section 9.07 Duty to Notify. During the term of this Contract and for a period of five (5) years thereafter, the RECIPIENT is under a continuing obligation to notify the INSTITUTE's Chief Executive Officer at the same time it is required to notify any Federal or State entity of any unexpected adverse event or condition that materially impacts the performance or general public perception of the conduct or results of the Project and Institute-Funded Activities, including any impact to the Scope of Work included in the Contract and events or results that have a serious adverse impact on human health, safety or welfare. By way of example only, if clinical testing of the results of Institute-Funded Activities reveal an unexpected risk of developing serious health conditions or death, then the RECIPIENT shall, at the same time it notifies any Federal or State entity, promptly so notify the INSTITUTE's Chief Executive Officer even if such results are not available until after the term of this Contract. Notice required under this section shall be made as promptly as reasonably possible and shall follow the procedures set forth in Section 9.21 "Notices."

Section 9.08 Severability. If any provision of this Contract is construed to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or enforceability shall not affect any other provisions hereof. The invalid, illegal or unenforceable provision shall be deemed stricken and deleted to the same extent and effect as if never incorporated herein. All other provisions shall continue as provided in this Contract.

Section 9.09 Survival of Terms. Termination or expiration of this Contract for any reason will not release either party from any liabilities or obligations set forth in this Contract that: (1) the Parties have expressly agreed shall survive any such termination or expiration; or (2) remain to be performed or by their nature would be intended to be applicable following any such termination or expiration. Such surviving terms include, but are not limited to, Sections 2.13, 4.01, 4.02, 4.05, 4.06, 8.02, 8.06, 9.04, 9.05, 9.06, 9.07, 9.09, 9.14, 9.15, 9.16, 9.17, 9.18, and Attachment D.

Section 9.10 Binding Effect and Assignment or Modification. This Contract and all terms, provisions and obligations set forth herein shall be binding upon and shall inure to the benefit of the parties and their successors and permitted assigns, including all other state agencies and any other agencies, departments, divisions, governmental entities, public corporations or other entities which shall be successors to either of the parties or which shall succeed to or become obligated to perform or become bound by any of the covenants, agreements or obligations hereunder of either of the parties hereto. Upon a permitted assignment of this Contract by RECIPIENT, all references to "the RECIPIENT" herein shall be deemed to refer to such permitted assignee.

Section 9.11 No Waiver of Contract Terms. Neither the failure by the RECIPIENT or the INSTITUTE, in any one or more instances, to insist upon the complete and total observance or performance of any term or provision

hereof, nor the failure of the RECIPIENT or the INSTITUTE to exercise any right, privilege or remedy conferred hereunder or afforded by law, shall be construed as waiving any breach of such term or provision or the right to exercise such right, privilege or remedy thereafter. In addition, no delay on the part of either the RECIPIENT or the INSTITUTE, in exercising any right or remedy hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right or remedy preclude other or further exercise thereof or the exercise of any other right or remedy.

Section 9.12 No Waiver of Sovereign Immunity. No provision of this Contract is in any way intended to constitute a waiver by the INSTITUTE, the RECIPIENT (if applicable), or the State of Texas of any immunities from suit or from liability that the INSTITUTE, the RECIPIENT, or the State of Texas may have by operation of law.

Section 9.13 Force Majeure. Neither the INSTITUTE nor the RECIPIENT will be liable for any failure or delay in performing its obligations under the Contract if such failure or delay is due to any cause beyond the reasonable control of such party, including, but not limited to, unusually severe weather, strikes, natural disasters, fire, civil disturbance, epidemic, war, court order or acts of God. The existence of such causes of delay or failure will extend the period of performance in the exercise of reasonable diligence until after the causes of delay or failure have been removed. Each party must inform the other in accordance with Section 9.21 "Notices" within five (5) business days, or as soon as it is practical, of the existence of a force majeure event or otherwise waive this right as a defense.

Section 9.14 Disclaimer of Damages. IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR ANY INDIRECT, SPECIAL, PUNITIVE, EXEMPLARY, INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS LIMITATION WILL APPLY REGARDLESS OF WHETHER OR NOT THE OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Section 9.15 Indemnification and Hold Harmless. Except as provided herein, the RECIPIENT agrees to fully indemnify and hold the INSTITUTE and the State of Texas harmless from and against any and all claims, demands, costs, expenses, liabilities, causes of action and damages of every kind and character (including reasonable attorneys fees) which may be asserted by any third party in any way related or incident to, arising out of, or in connection with (1) the RECIPIENT's negligent, intentional or wrongful performance or failure to perform under this Contract, (2) the RECIPIENT's receipt or use of Grant funds, or (3) any negligent, intentional or wrongful act or omission committed by the RECIPIENT as part of an Institute-Funded Activity or during the Project. In addition, the RECIPIENT agrees to fully indemnify and hold the INSTITUTE and the State of Texas harmless from and against any and all costs and expenses of every kind and character (including reasonable attorneys fees, costs of court and expert fees) that are incurred by the INSTITUTE or the State of Texas arising out of or related to a third party claim of the type specified in the preceding sentence. Notwithstanding the preceding, such indemnification shall not apply in the event of the sole or gross negligence of the INSTITUTE. If the RECIPIENT is a State of Texas agency or institution of higher education, then this Section 9.15 is subject to the extent authorized by the Texas Constitution and the laws of the State of Texas.

The RECIPIENT acknowledges and agrees that this indemnification shall apply to, but is not limited to, employment matters, taxes, personal injury, and negligence.

It is understood and agreed that it is not the intent of the parties to expand or increase the liability of the State of Texas under this Article. This provision is intended to prevent the RECIPIENT, the INSTITUTE and the State of Texas from attempting or appearing to assume liability it does not have the statutory or legal power to assume.

Section 9.16 Alternative Dispute Resolution. If applicable, the dispute resolution process provided for in TEX. GOVT. CODE, Ch. 2260 shall be used, as further described herein, to resolve any claim for breach of contract made against the INSTITUTE (excluding any uncured Event of Default). The submission, processing and resolution of a party's claim are governed by the published rules adopted by the Attorney General pursuant to TEX. GOVT. CODE, Ch. 2260, as currently effective, hereafter enacted or subsequently amended.

Section 9.17 **Applicable Law and Venue**. This Contract shall be construed and all disputes shall be considered in accordance with the laws of the State of Texas, without regard to its principles governing the conflict of laws. Provided that the RECIPIENT first complies with procedures set forth in Section 9.16 "Alternative Dispute Resolution," exclusive venue and jurisdiction for the resolution of claims arising from or related to this Contract shall be in the federal and state courts in Travis County, Texas.

Section 9.18 **Attorneys' Fees**. In the event of any litigation, appeal or other legal action to enforce any provision of the Contract, the RECIPIENT shall pay all expenses of such action, including attorneys' fees and costs, if the INSTITUTE is the prevailing party. If the RECIPIENT is a State of Texas agency or institution of higher education, then this Section 9.18 is subject to the extent authorized by the Texas Constitution and the laws of the State of Texas.

Section 9.19 **Counterparts**. This Contract may be executed in any number of counterparts, each of which when so executed and delivered shall be an original, but such counterparts shall together constitute one and the same instrument.

Section 9.20 **Construction of Terms**. The headings used in this Contract are inserted only as a matter of convenience and for reference and shall not affect the construction or interpretation of this Contract. Where context so indicates, a word in the singular form shall include the plural, a word in the masculine form the feminine, and vice-versa. The word "including" and similar constructions (such as "includes", "included", "for example", "such as", and "e.g.") shall mean "including, without limitation" throughout this Contract. The words "and" and "or" are not intended to convey exclusivity or nonexclusivity except where expressly indicated or where the context so indicates in order to give effect to the intent of the parties.

Section 9.21 **Notices**. All notices, requests, demands and other communications will be in writing and will be deemed given on the date received as demonstrated by (i) a courier's receipt or registered or certified mail return receipt signed by the party to whom such notice was sent, provided that such notice was sent to the Authorized Signing Official (ASO) at the address provided in the CPRIT Grants Management System, (ii) a fax confirmation page showing that such fax was successfully transmitted to the fax number provided in the CPRIT Grants Management System, or (iii) via correspondence in the CPRIT Grants Management System.

DP160071, Contract Attachment A

Abstract and Significance

Multiple myeloma accounts for 10% of all hematological malignancies in the United States. An estimated 26,850 people were diagnosed with the disease in the United States in 2015 with an estimated 11,200 deaths resulting from the disease (SEER Cancer Statistics, 2015). The five-year survival rate for myeloma is only 45%.

Historically, there have been three major classes of therapeutics used to treat multiple myeloma: steroids, proteasome inhibitors, and the thalidomide-derived immunomodulatory drugs (IMiDs). In 2015, daratumumab, an antibody to CD38, and elotuzumab, an antibody to CS1, became the first biologics approved for multiple myeloma. Daratumumab in particular has shown robust single-agent activity (29% response rate) in relapsed/refractory patients indicating that CD38 plays an important role in myeloma disease progression.

Because of the generally poor outcome in myeloma patients, there is a high need for new therapeutics to treat the disease. Molecular Templates has developed a novel scaffold of biologics against cancer by fusing the single chain variable fragment of an antibody (scFv) to a proprietarily modified form of the Shiga-like toxin A subunit (SLTA), an enzymatic inactivator of ribosome activity. These compounds combine the specificity of an antibody with a novel and potent direct mechanism of cell-kill. Molecular Templates' first compound, MT-3724 targets CD20 and is in a first-in-human dose-escalation study at MD Anderson and Memorial Sloan Kettering in heavily pre-treated patients with non-Hodgkins lymphoma (NHL). To date, there have been twelve patients treated with no dose-limiting toxicities seen. Of the eleven patients evaluable for efficacy, there has been one complete metabolic response (patient to undergo allogeneic transplant), one partial response, one mixed response, three stable diseases (all with tumor regression), and five patients with progressive disease. This efficacy is especially impressive since MT-3724 has not yet reached linear pharmacokinetics in its dose escalation.

Molecular Templates has designed MT-4019ND for the treatment of multiple myeloma. MT-4019ND has a high-affinity scFv that specifically targets CD38 fused to a proprietary de-immunized form of SLTA. MT-4019ND has shown extremely potent in vitro and in vivo activity against tumor cells expressing CD38. MT-4019ND has shown potent synergistic activity in combination with pomalidomide, the standard of care for refractory myeloma patients. MT-4019ND mirrors MT-3724 in terms of scaffold construction with similar absorption, distribution, metabolism and excretion (ADME) and pharmacokinetics (PK) characteristics.

CD38 was chosen as a target because of the clinical activity of daratumumab. Daratumumab works primarily by directing complement dependent cytotoxicity (CDC) and antibody-dependent cell-mediated cytotoxicity (ADCC) to CD38+ myeloma cells. Although immune recruitment can be a potent mechanism of cell-kill, roughly 70% of CD38+ refractory patients fail to respond to daratumumab monotherapy.

There is strong precedence in oncology for developing different mechanisms of action against the same validated target. There is an approved antibody, small molecule, and antibody-drug conjugate targeting HER2 in breast cancer, for example as well as multiple small molecules and antibodies to EGFR. In multiple myeloma, three different IMiDs (lenalidomide, pomalidomide, and thalidomide) are used sequentially in treatment. MT-4019ND was engineered to provide a different mechanism of destruction targeting CD38+ myelomas. In in vitro and in vivo studies, MT-4019ND shows excellent specificity, potency and safety as well as synergistic activity in combination with an IMiD. MT-3724 is administered as an infusion and has predictable PK and ADME characteristics. MT-4019ND shares a scaffold with MT-3724 which has shown excellent safety and notable efficacy in its first-in-human study.

This application outlines a strategy to move MT-4019ND into clinical studies and rapidly characterize its activity in myeloma patients with no other treatment options. The development plan outlined in this application follows that of daratumumab and has the potential to show early signs of safety and efficacy and to form the basis of an accelerated FDA approval. Molecular Templates has successfully demonstrated that it can efficiently move pre-clinical leads into first-in-human studies. The early clinical data seen the company's lead compound MT-3724 strongly suggest the scaffold used to construct MT-4019ND is safe and effective.

Layperson's Summary

In 2015, there were approximately 27,000 new cases of multiple myeloma diagnosed in the US making it the second most prevalent blood cancer. The five-year survival rate for multiple myeloma is 45% and the median survival is approximately 4 years.

CD38 is a protein expressed on the surface of myeloma cells. Recently, daratumumab, an antibody that specifically targets CD38, was approved for the treatment of patients with multiple myeloma. Daratumumab works primarily by binding myeloma cells and recruiting an immune response to them. Most patients' immune system will ultimately stop responding to daratumumab allowing the disease to progress.

Molecular Templates, a venture-backed biopharmaceutical company in Georgetown, TX, has developed a novel multiple myeloma drug that targets CD38 but works in a different way from daratumumab. MT-4019ND is a fusion of an antibody fragment that binds CD38 with a highly toxic bacterial protein. MT-4019ND binds CD38 on the surface of myeloma cells but instead of recruiting an immune response, it directly kills the myeloma cell through its toxin component. MT-4019ND has shown a potent ability to kill myeloma cell lines in the laboratory and in animal models of myeloma. Molecular Templates has a similar compound in the clinic for lymphoma that appears safe and effective in patients.

Molecular Templates seeks $15.3M in CPRIT financing to move MT-4019ND through clinical studies in patients with refractory multiple myeloma.

Timelines: project_timeline.pdf

Goal 1: ADDED	[***]
Objective 1: ADDED	[***]
Objective 2: ADDED	[***]
Objective 3: ADDED	[***]
Goal 2: ADDED	[***]
Objective 1: ADDED	[***]
Objective 2: ADDED	[***]
Objective 3: ADDED	[***]
Goal 3: ADDED	[***]
Objective 1: ADDED	[***]
Objective 2: ADDED	[***]

TIMELINE

[***]

ATTACHMENT B - Detailed Budget Form

Budget	Budget Year 1	Budget Year 2	Budget Year 3	Total Budget
[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]
[***]	**[***]**	**[***]**	**[***]**	**$15,200,000.00**
[***]	[***]	[***]	[***]	[***]
[***]	**[***]**	**[***]**	**[***]**	**$15,200,000.00**

* Note:
[***]

[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

ATTACHMENT C

ASSURANCES AND CERTIFICATIONS

This Attachment C is hereby incorporated into and made a part of that certain **CANCER RESEARCH GRANT CONTRACT** ("**Contract**") by and between the Cancer Prevention and Research Institute of Texas ("**CPRIT**" or the "**INSTITUTE**") and the RECIPIENT. A capitalized term used in this Attachment shall have the meaning given to term in the Contract or in the Attachments to the Contract, unless otherwise defined herein. In the event of a conflict between the provisions of this Attachment and the provisions of the Contract, this Attachment shall control.

By signing this Contract, RECIPIENT certifies compliance with the following assurances and certifications required by the INSTITUTE (listed below). RECIPIENT further acknowledges that its obligations pursuant to the following assurances and certifications are ongoing.

Section C1.01 Demonstration of Matching Funds. Pursuant to TEX. HEALTH & SAFETY CODE § 102.255(d) and T.A.C. 25 § 703.11, RECIPIENT has an amount of funds equal to one-half of the amount of the Grant to be disbursed each fiscal year of the Contract term dedicated to the research that is the subject of the Grant as demonstrated by the form incorporated herein to Attachment C. The RECIPIENT shall update the matching funds certification and verficiation annually for each fiscal year that Grant funds are disbursed.

Section C1.02 Payment of Taxes. RECIPIENT's payment of franchise taxes is current or, if the RECIPIENT is exempt from payment of franchise taxes, that it is not subject to the State of Texas franchise tax. If franchise tax payments become delinquent during the Contract term, payments under this Contract will be withheld until the RECIPIENT's delinquent franchise tax is paid in full. The RECIPIENT also acknowledges that it is not otherwise exempt from state sales or occupancy tax as a result of this Contract.

Section C1.03 Compliance with Confidentiality Guidelines Relating to Personal and Medical

Information. RECIPIENT complies with all applicable laws, rules and regulations relating to personal and medical information. Without in any way limiting the foregoing, RECIPIENT maintains and enforces appropriate facility and information technology access rules and procedures to protect against inappropriate disclosure of patient records and all other documents deemed confidential by law, which are maintained in connection with the Project and Institute-Funded Activities, including provisions that comply with the requirements of the INSTITUTE's rules, 25 T.A.C. Section 703.14. Upon request from the INSTITUTE, RECIPIENT will timely furnish a copy of the RECIPIENT's facility and information technology access rules and procedures, as well as any other applicable confidentiality guidelines.

If RECIPIENT, including any Collaborators or Contractors, works directly with patients or otherwise has access to or maintains patient personal and medical information, RECIPIENT specifically addresses Health Insurance Portability and Accountability Act of 1996 regulations concerning confidentiality of personal and medical information. Any disclosure of confidential information in any way related to the Project (including information that may be required by reports and inspections) must be in accordance with all applicable laws.

Section C1.04 Conduct of Research or Service Provided. RECIPIENT understands that the Project must be conducted with full consideration for the ethical and medical implications of the research performed or services delivered and comply with all federal and state laws regarding the conduct of the research or service.

Section C1.05 Regulatory Certificates, Licenses and Permits. All personnel, facilities and equipment involved or to be involved in the Project are certified, licensed, permitted, registered or approved by the appropriate regulating agency, where applicable. Any revocation, surrender, expiration, non-renewal, inactivation or suspension of any such certification, license, permit, registration or approval shall constitute grounds for Contract termination.

Section C1.06 Assurances and Certifications in Accordance with the NIH *Grants Policy Statement*.

(a) Civil Rights. Compliance with Title VI of the Civil Rights Act of 1964.

(b) Handicapped Individuals. Compliance with Section 504 of the Rehabilitation Act of 1973 as amended.

(c) Sex Discrimination. Compliance with Section 901 of Title IX of the Education Amendments of 1972 as amended.

(d) Age Discrimination. Compliance with the Age Discrimination Act of 1975, as amended.

(e) Patents, Licenses and Inventions. Compliance with the Standard Patent Rights clauses as specified in 37 CFR, Part 401 or 35 U.S.C. 203, if appropriate and applicable, in a manner that adequately protects the INSTITUTE'S rights in the Project Results.

(f) Human Subjects. Compliance with the requirements of federal policy concerning the safeguarding of the rights and welfare of human subjects who are involved in activities supported by federal funds. Before any funding may be released for any Project involving human subjects, RECIPIENT must receive approval from RECIPIENT's Institutional Review Board (IRB). Upon request, a copy of RECIPIENT's IRB approval must be provided to the INSTITUTE.

(g) Human Biological/Anatomical Material. Compliance with the recommendations of the NIH Office of Human Subject Research Medical Administrative Series (MAS) #MO1-2 entitled "Procurement and Use of Human Biological Materials for Research," and any other federal or state requirements.

(h) Use of Animals. Compliance with applicable portions of the Animal Welfare Act (PL 89-544 as amended) and appropriate Public Health Service Policy on Humane Care and Use of Laboratory Animals regulations. Before any funding may be released for any Project involving animal subjects, RECIPIENT must receive approval from RECIPIENT's Institutional Animal Care and Use Committee (IACUC). Upon request, a copy of RECIPIENT's IACUC approval must be provided to the INSTITUTE.

(i) Debarment and Suspension. RECIPIENT certifies that neither it nor the Principal Investigator/Project Director or any other Recipient Personnel or personnel of any Collaborator or Contractor assigned to work on the Project are debarred, suspended, proposed for debarment, declared ineligible or otherwise excluded from participation in the Project by any federal or state department or agency.

(j) Non-Delinquency on Federal or State Debt. RECIPIENT certifies that neither it, nor any person to be paid from funds under this Contract, is delinquent in repaying any Federal debt as defined by OMB Circular A-129 or any debt to the State of Texas.

(k) Eligibility to Receive Payments on State Contracts. RECIPIENT certifies that it and the Principal Investigator/Project Director are not ineligible to receive the Grant award under this Contract pursuant to Tex. Fam. Code Ann. Section 231.006 and acknowledges that this Contract may be terminated and payment may be withheld if this certification is inaccurate.

(l) Drug-Free Workplace. Compliance with the Drug-Free Workplace Act of 1988 (45 CFR 82).

(m) Misconduct in Science. Compliance with 42 CFR Part 50, Subpart A, and Final Rule as published at 54 CFR 32446, August 8, 1989.

(n) Objectivity of Research/Conflict of Interest. Compliance with the NIH requirement to maintain a written standard of conduct and comply with 42 CFR Part 50, Subpart F, Responsibility of Applicants for Promoting Objectivity in Research. RECIPIENT must notify the INSTITUTE of any conflicting financial interests and assure that the interest has been managed, reduced or eliminated.

(o) Trafficking in Persons. Compliance with the NIH regulations on trafficking in persons as published at http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-055.html .

(p) Criminal Misconduct. RECIPIENT shall promptly report issues to the INSTITUTE involving potential civil or criminal fraud related in any way to the Project, the Institute-Funded Activity or this Contract, such as false claims or misappropriation of federal or state funds.

Section C1.07 Tobacco Free Workplace Policy. Pursuant to T.A.C. 25 § 703.20, RECIPIENT certifies that its board of directors, governing body, or similar has adopted and enforces a Tobacco-Free Workplace Policy that meets or exceeds all of the following minimum standards:

(a) Prohibits the use of all forms of tobacco products, including but not limited to cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff and chewing tobacco;

(b) Designates the property to which the policy applies ("designated area"). The designated area(s) must at least comprise all buildings and structures where the CPRIT project is taking place, as well as the sidewalks, parking lots, walkways, and attached parking structures immediately adjacent but only to the extent the CPRIT Grant Recipient owns, leases as the sole tenant, or controls the building, sidewalks, parking lots and/or parking structures. In the event that the RECIPIENT does not own, lease as the sole tenant, or control the building, sidewalks, parking lots and/or parking structures, then the designated area(s) must include all areas under the RECIPIENT's control;

(c) Applies to all employees and visitors in the designated area(s); and

(d) Provides for or refers employees to tobacco use cessation services.

If RECIPIENT cannot meet the minimum standards as set forth in this section, RECIPIENT certifies that it has received an approved waiver from the INSTITUTE's CEO for the current fiscal year.

Section C1.08 No Donations to the Institute or a Foundation Established to Support Institute RECIPIENT certifies that as of June 14, 2013, it has not made and will not make a contribution, during the term of the Contract, to the INSTITUTE or to any foundation established specifically to support the INSTITUTE.

DP160071 - Product Development Research Contract Attachment C Part 2 Matching Compliance Certification (MCC) - Initial

For Public or Private Institutions of Higher Education ONLY (all other entities proceed to the section below): The grant recipient may credit toward the matching funds requirement the dollar equivalent to the difference between the institution's federally approved indirect cost rate for research projects and CPRIT's [***] indirect cost allowance. If a Public or Private Institution of Higher Education intends to fulfill its match requirement using expended funds only (no federally approved indirect cost rate credit), then choose "No" on the first question and proceed with the form submission.

If the grant recipient's Federally Approved Indirect Cost Rate is greater than or equal to [***] (the [***] matching funds requirement and the [***] CPRIT Indirect Cost Rate), then no further action is required once the appropriate information has been entered in lines "a" through "d" and in the "Enter Certification of Initial Matching Funds Encumbered" field below.

If the combined Federally Approved Indirect Cost Rate and the CPRIT Indirect Cost Rate calculated for the Project is less than [***], then the grant recipient must use the section below to demonstrate that it has encumbered funds available and not yet expended that are dedicated to the CPRIT-funded project for the portion of the match requirement not met by the Federally Approved Indirect Cost Rate credit.

Public or Private Institution of Higher Education: **(Choose 'No' if You Are Using Encumbered Funds)**	[***]
Matching funds Requirement + CPRIT Indirect Cost Rate:	**[***]**
Federally Approved Cost Rate for Project for Year 1:	[***]
Percentage to fulfill match requirement for Year 1:	[***]
Certified Year 1 Approved Budget:	**[***]**
Remaining Dollar amount to fulfill match requirement for the Award year 1:	[***]
Match based on prior year credit/deficiency:	[***]
Enter Certification of Initial Matching Funds Encumbered:	[***]

The information above is the entity/Institution's demonstration of encumbered available funds pursuant to its certification in Attachment C. The information in the certification shall be updated annually. **By approving this form the grant recipient certifies that it has the matching funds available as reflected on the form.**

ATTACHMENT D
INTELLECTUAL PROPERTY AND REVENUE SHARING

This Attachment D is hereby incorporated into and made a part of that certain**CANCER RESEARCH GRANT CONTRACT** ("**Contract**") by and between the Cancer Prevention and Research Institute of Texas ("**CPRIT**" or the "**INSTITUTE"**) and the RECIPIENT. A capitalized term used in this Attachment shall have the meaning given the term in the Contract or in the Attachments to the Contract, unless otherwise defined herein. In the event of a conflict between the provisions of this Attachment and the provisions of the Contract, this Attachment shall control.

PART 1
OWNERSHIP AND INTELLECTUAL PROPERTY PROTECTION

Section D1.01 Ownership of Project Results. RECIPIENT and its Collaborators, and (to the extent applicable) any third party participating in the development of the Project Results, shall retain ownership of the Institute-Funded Technology and the Institute-Funded IPR, subject to the terms of the Contract. A Collaborator as defined in the Contract is not a third party that engages with RECIPIENT as a licensing partner.

Section D1.02 Transfer or Assignment of Rights to a Third Party. RECIPIENT shall notify the INSTITUTE of any proposed transfer or assignment of rights in any Project Results to a third party and provide to INSTITUTE a copy of the agreement under which the proposed transfer or assignment is to occur. RECIPIENT shall ensure that, in any assignment or transfer of Project Results, the transferee or assignee agrees in writing to: (i) recognize that the Institute-Funded IPR and Institute-Funded Technology, as applicable, is transferred or assigned subject to the licenses, interests and other rights in such Project Results provided to the INSTITUTE in the Contract and any applicable law or regulation, (ii) take all actions necessary to protect all such licenses, interests and other rights, and (iii) be responsible for and pay all amounts required under Part 4 of this Attachment D. Any attempted transfer or assignment of rights in any Project Results to a third party without written agreement to the conditions in (i) – (iii) above shall be null, void and of no effect.

Section D1.03 Protection of Institute-Funded IPR. Subject to Section D5.01, RECIPIENT shall use commercially reasonable efforts to appropriately protect the Institute-Funded IPR, including without limitation, diligently seeking registration and maintenance of patents and copyrights covering the Institute-Funded Technology, as appropriate. If RECIPIENT elects to abandon any patent applications filed or patents issued covering any Institute-Funded Technology in any Major Market Country, RECIPIENT shall provide the INSTITUTE with prior written notice of such election, with sufficient time (but no less than [***]) for the INSTITUTE to exercise its rights under this Section D1.03 with respect thereto. Upon notice of the aforesaid, the INSTITUTE shall have the right, but not the obligation, to pursue protection of the applicable Institute-Funded Technology on its own behalf in such Major Market Country, including directing the filing, prosecution and maintenance of patent applications or patents covering the applicable Institute-Funded Inventions in any of such Major Market Countries for which the INSTITUTE exercises its rights under this Section D1.03. In the Major Market Countries where the INSTITUTE pursues protection of the Institute-Funded Technology under this Section D1.03, RECIPIENT agrees to grant, and does hereby grant, to the INSTITUTE anon-exclusive, irrevocable, royalty-free, perpetual license with right to sublicense in the applicable Major Market Countries to the applicable Instituted-Funded Technology and any applicable Project Results. For clarification, a determination by RECIPIENT to (i) abandon a patent application in favor of a continuation or divisional application or the like, or (ii) narrow the scope of the claimed subject matter, shall not be deemed an election to abandon such Institute-Funded IPR.

Section D1.04 Cost of Protection. The INSTITUTE shall not be responsible for, and no Grant funds may be used to pay for, any costs or expenses associated with RECIPIENT's efforts to protect the Institute-Funded IPR.

Section D1.05 Inventions.

(a) Disclosures and Patent Applications. RECIPIENT shall notify INSTITUTE of each Institute-Funded Invention by delivering to INSTITUTE a copy of the invention disclosure within [***] after RECIPIENT receives or generates it. In the event that a patent application is filed on the invention

disclosure, RECIPIENT shall provide the INSTITUTE with a complete copy of such patent application and associated filing documents within [***] of its filing.

(b) Patent Prosecution and Maintenance. For all Institute-Funded Inventions for which patent protection is pursued, RECIPIENT shall provide an annual written report to the INSTITUTE regarding the status of pending applications and issued patents that are Institute-Funded IPR.

Section D1.06 Required Agreements with Recipient Personnel and Contractors. The RECIPIENT shall have, maintain and enforce written policies or agreements applicable to Recipient Personnel and Contractors with terms sufficient to enable RECIPIENT to fully comply with all terms and conditions of this Contract, including that Recipient Personnel and Contractors agree to and hereby assign any Institute-Funded Inventions to RECIPIENT. RECIPIENT shall promptly report to INSTITUTE any material breach of such policies or agreements relating to or affecting any of the provisions of this Contract.

Section D1.07 Agreements with Collaborators. All agreements between RECIPIENT and a Collaborator, or a third party participating in the development of the Project Results, relating to or affecting joint ownership of any Project Result shall recognize the licenses, interests and other rights provided to the INSTITUTE in the Contract. RECIPIENT shall provide to the INSTITUTE a copy of each such agreement affecting joint ownership of any Project Result.

PART 2
NON-COMMERCIAL LICENSES

Section D2.01 RECIPIENT License. In granting an Exclusive License to any Project Results, RECIPIENT shall retain the right to Exploit all Project Results (including material embodiments thereof) for education, research and other non-commercial purposes, and the right to grant the licenses pursuant to Section D2.02 below.

Section D2.02 INSTITUTE License. RECIPIENT agrees to grant, and does hereby grant, to the INSTITUTE a non-exclusive, irrevocable, royalty-free, perpetual, worldwide license with right to sublicense under the Project Results and, subject to any existing third party rights, any Necessary Additional IPR to Exploit all Project Results (including material embodiments of Project Results) by the INSTITUTE, other governmental entities and agencies of the State of Texas, and private or independent institutions of higher education (as defined by Texas law) located in Texas, for education, research and other non-commercial purposes only pursuant to industry-standard confidentiality and/or material transfer agreements to be entered into between the parties, as applicable. RECIPIENT shall make the Institute-Funded Technology available by reasonable means to the INSTITUTE in order for the INSTITUTE to exercise its rights under this Section D2.02, at no cost to RECIPIENT. A copy of any written license granted by INSTITUTE under this Section D2.02 will be provided to RECIPIENT by INSTITUTE within [***] of the effective date of such license.

Section D2.03 No Implied Licenses. No implied licenses are granted under this Agreement including without limitation any license to any Intellectual Property Rights owned or controlled by RECIPIENT outside of the Institute-Funded IPR. Nothing in this Agreement shall be construed to impose an obligation on RECIPIENT to license or otherwise make available any of its Intellectual Property Rights or other resources owned or controlled by it except as expressly provided in this Agreement.

PART 3
COMMERCIALIZATION OF PROJECT RESULTS

Section D3.01 Commercialization Strategy. RECIPIENT shall be under a continuing obligation throughout the term of this Contract to enhance and improve the commercial development plan submitted with the Application and to provide an annual written report to the INSTITUTE regarding the RECIPIENT's and its licensee's efforts to commercialize or otherwise bring to practical application Project Results. The INSTITUTE may, at its option and at any time, provide RECIPIENT with comments regarding the RECIPIENT's commercial development plan and

strategy, in which case RECIPIENT shall consider in good faith and, if appropriate, use reasonable efforts to account for and incorporate the INSTITUTE's input into such commercial development plan and strategy.

Section D3.02 Commercialization Efforts. The RECIPIENT shall, including whether through its own efforts or the efforts of a licensee under a License Agreement allowed by the terms of this Attachment, use diligent and commercially reasonable efforts to commercialize at least one Commercial Product or Commercial Service or otherwise bring to practical application the Project Results in accordance with the commercial development plan submitted with the Application and including any changes to such commercial development plan in accordance with Section D3.01. For the avoidance of doubt, partnering or licensing activities shall be considered to be efforts to commercialize.

Section D3.03 Licensing of Project Results. Each License Agreement entered into by the RECIPIENT shall include an acknowledgement by the licensee that (i) such License Agreement is subject to the INSTITUTE's licenses, interests and other rights under this Contract, and (ii) to the extent that there is a conflict between the terms of the License Agreement and the terms of this Contract, the terms of this Contract shall prevail. In addition, all License Agreements shall include terms obligating the licensee to report to the RECIPIENT such information as is required for the RECIPIENT to fully comply with the terms of the Contract, including without limitation the reporting obligations set forth in Attachment E, and to allow RECIPIENT to make the grants specified in Sections D2.02. The RECIPIENT shall monitor the performance of its licensees and such licensees' compliance with the terms of the License Agreements and shall take commercially reasonable actions to enforce the terms of all License Agreements. The RECIPIENT shall [***] report to the INSTITUTE any material breach of a License Agreement relating to or affecting any of the material provisions of this Contract.

Section D3.04 Cost of Licensing Activities. The INSTITUTE shall not be responsible for, and no Grant funds may be used to pay for, any costs or expenses associated with the RECIPIENT's Licensing Activities.

Section D3.05 Survival. The licenses, rights and obligations set forth in this Attachment D, except Section D3.01, shall survive any termination of this Contract, including any termination for convenience by RECIPIENT.

Section D3.06 Recipient Opt-Out. In the event RECIPIENT determines, after diligently attempting to comply with the terms of Section D3.02, to cease its efforts, either directly or through a licensee, to commercialize or otherwise bring to practical application the Project Results, it will so notify the INSTITUTE in writing promptly thereafter. Such written notice must identify the Project Results and provide a reasonable explanation of the reasons for the RECIPIENT's election. Upon receipt of such notice, the INSTITUTE and RECIPIENT shall meet within [***] to review the Project Results and rationale for the RECIPIENT's election. Provided that RECIPIENT's determination to cease its efforts was not based on material safety concerns related to the Project Results, the INSTITUTE and RECIPIENT shall engage in good faith negotiations regarding an alternative commercialization strategy and/or revenue sharing approach.

The INSTITUTE and RECIPIENT may consider, among other options, an award of equity in the RECIPIENT, expansion or modification of the Institute Funded Activity to cover other commercial products or commercial services being advanced by the RECIPIENT, or some combination thereof. Unless otherwise agreed, if the INSTITUTE and RECIPIENT are unable to achieve an alternative strategy or agreement within [***] of the RECIPIENT's initial notice of election, and provided that RECIPIENT's determination to cease its efforts was not based on material safety concerns related to the Project Results, the INSTITUTE shall have the right, but not the obligation, to exercise its rights in Section D5.01 in relation to the Project Results at the INSTITUTE's expense. If the INSTITUTE elects to exercise its rights under Section D5.01 in relation to the Project Results, the INSTITUTE shall notify the RECIPIENT in writing within the later of [***] of INSTITUTE's receipt of the RECIPIENT's initial notice of election or [***] following a declaration by one of the Parties that good faith negotiations have failed. In the event that the INSTITUTE exercises its option under this Section D3.06, the RECIPIENT shall cooperate with the INSTITUTE's efforts and provide to INSTITUTE sufficient information such as relevant feasibility studies, trial results, regulatory summaries, and pertinent schedules or deadlines in relation to the Project Results, in commercializing or otherwise bringing to practical application the applicable Project Results at the INSTITUTE's cost. For clarity, so long as the RECIPIENT is making efforts to commercialize at least one Commercial Product or

Commercial Service, RECIPIENT shall have no obligation to provide the written notice as described in this Section D3.06.

PART 4
REVENUE SHARING

Section D4.01 **Revenue Sharing Percentages**. In consideration for the Grant Award Proceeds paid to the RECIPIENT by the INSTITUTE under the Contract:

a. RECIPIENT shall pay to the INSTITUTE during the Revenue Term the following payments until the INSTITUTE receives the aggregate amount of four hundred percent (400%) of the Grant Award Proceeds:

(i) a revenue sharing percentage of [***] of Revenue for Cumulative Revenue greater than [***] and less than or equal to [***];

(ii) a revenue sharing percentage of [***] of Revenue for Cumulative Revenue greater than [***] and less than or equal to [***]; and

(iii) a revenue sharing percentage of [***] of Revenue for Cumulative Revenue greater than [***].

For clarity, no payments will be made by the RECIPIENT to the INSTITUTE under this Section D4.01(a) until the Cumulative Revenue of the Recipient is greater than [***].

b. In the event the RECIPIENT and/or its licensee is required to obtain a license under Intellectual Property Rights of one or more Third Parties in order to make Sales of Commercial Products and/or Commercial Services in any given country ("**Participating License Sources**"), then the revenue sharing percentages set forth under Section D4.01(a)(i)-(iii) may be reduced by [***] for every [***] royalty paid to such Third Parties on Commercial Products and/or Commercial Services in such country, as applicable, provided that in no event will the payments otherwise due to the INSTITUTE under Section D4.01(a) be less than [***] of the payments that would be payable to the INSTITUTE absent the effects of this Section D4.01(b). By way of example, if the RECIPIENT is required to obtain such a license from a Third Party in a country wherein the RECIPIENT pays a [***] royalty for Intellectual Property Rights that cover Commercial Products and Commercial Services in such country, the revenue sharing percentages under Section D4.01(a)(i), (ii), and (iii) would be reduced to [***] in such country, respectively.

Section D4.02 **Continued Revenue Sharing**. In the event the INSTITUTE receives during the Revenue Term the aggregate amount of four hundred percent (400%) of the Grant Award Proceeds from the RECIPIENT, the RECIPIENT will continue to pay the INSTITUTE a revenue sharing percentage of one-half percent (0.5%) of Revenue for all Revenue generated during the remainder of the Revenue Term. For clarity, this revenue sharing percentage cannot be reduced as set forth in Section D4.01(b).

Section D4.03 **Equity**. Nothing herein prohibits the INSTITUTE from negotiating with the RECIPIENT for an equity share in the RECIPIENT in addition to or in lieu of the revenue sharing set forth in Sections D4.01 and D4.02, when mutually agreed to by the INSTITUTE and the RECIPIENT. But under no circumstances is the INSTITUTE obligated to negotiate for an equity share in the RECIPIENT in lieu of the revenue sharing set forth herein.

Section D4.04 **Statements and Timing of Payments**. All payments owed pursuant to this Part 4 shall be made to the Cancer Prevention and Research Institute of Texas, and are payable on or before the thirtieth day following the end of the calendar quarter in which the Revenue is received or, in the case of Section D4.05, the monetary recovery is received. For each payment specified in Sections D4.01 and D4.02, the payment shall be accompanied by a statement specifying for such calendar quarter: (i) the Contract to which the payment relates, (ii) the identities

of, royalty percentages, and amounts actually paid to any Participating License Sources, (iii) the License Agreements, if any, to which the payment relates, (iv) the quantity of all Sales of each Commercial Product and Commercial Service since the last payment, if Sales are applicable to the current payment, (v) the gross consideration from all such Sales, if Sales are applicable to the current payment, and (vi) a calculation of the amount of the payment to the Cancer Prevention and Research Institute of Texas.

Section D4.05 Recoveries in Enforcement Actions. In the event that the RECIPIENT receives any monetary recovery from its enforcement of Institute-Funded IPR against infringement by a third party, then it shall pay to the State of Texas a share of such monetary recovery, including any punitive damages, less the documented fees and expenses that are directly associated with such enforcement and are paid by RECIPIENT to third parties, at the same rate and in the same manner as it shares Revenue pursuant to Sections D4.01 and D4.02 (including any adjustments allowed by Section D4.01(b)). For clarity, if the enforcement action is resolved by way of the execution of a License Agreement with the allegedly infringing third party and such License Agreement is consistent with this Part 4, then this Section D4.05 is not intended to apply to such License Agreement or the consideration specified therein.

Section D4.06 Revenue-Related Records. In addition to satisfying the requirements of Article IV of the Contract and Section E1.03 of Attachment E, the RECIPIENT shall keep complete and accurate Revenue-related records until the fourth anniversary of the date of the payment of the last payment owed hereunder, in sufficient detail to permit the INSTITUTE to confirm the accuracy of the statements delivered to the INSTITUTE under Section D4.04 and the calculation of the payments owed hereunder.

Section D4.07 Audit of Revenue-Related Records. Upon at least fifteen (15) days' advance written notice, the RECIPIENT shall permit the INSTITUTE or its representatives or agents, at the INSTITUTE's expense, to examine the Revenue-related records of the RECIPIENT pursuant to Section D4.06 once per calendar year during regular business hours for the purpose of and to the extent necessary to verify the RECIPIENT's compliance with this Part 4. The rights of the INSTITUTE under this Section D4.07 shall terminate on the fourth anniversary of the date of the payment of the last payment owed hereunder. In the event that any such examination reveals an underpayment to the INSTITUTE of greater than [***] of the amounts previously paid by the RECIPIENT to the INSTITUTE, then the RECIPIENT shall reimburse the INSTITUTE for the cost of such examination.

PART 5
OPT-OUT AND DEFAULT

Section D5.01 RECIPIENT Opt-Out. If the INSTITUTE elects to exercise its rights in relation to the Project Results under Section D3.06, the INSTITUTE shall have the right, but not the obligation, to pursue protection of the Applicable Institute-Funded IPR on its own behalf, including directing the filing, prosecution and maintenance of patents covering the applicable Institute-Funded Inventions and/or to commercialize or otherwise bring to practical application Project Results covered by the Applicable Institute-Funded IPR, at its own cost, either directly or through one or more licensees. For the purposes of this Part 5, "Applicable Institute-Funded IPR" shall mean all Project Results. If the INSTITUTE elects to exercise any such rights under this Section D5.01, it shall notify RECIPIENT in writing pursuant to the notification requirements in Section D3.06 and RECIPIENT shall thereafter comply with the terms of Section D5.03 with regard to the Applicable Institute-Funded IPR.

Section D5.02 RECIPIENT Default. In the event that the INSTITUTE notifies RECIPIENT in writing of RECIPIENT's failure to materially comply with its obligations under Section D3.02, and RECIPIENT fails within [***] of such notice either: (a) to cure such failure, or in the event that such failure cannot be reasonably cured within such [***] period, to provide to INSTITUTE a plan to cure such failure that INSTITUTE deems acceptable, (b) to provide written notice to the INSTITUTE that such failure was due to material safety concerns, or (c) to provide proper notice pursuant to Section 3.06, then without further action on the part of the RECIPIENT or INSTITUTE, the RECIPIENT shall be deemed to have provided the INSTITUTE the complete, written notice of its cessation of efforts as described in Section 3.06, and the INSTITUTE shall be free to exercise its rights under Section 3.06.

Section D5.03 RECIPIENT Cooperation upon Opt-Out or Default. In the event that the INSTITUTE exercises any of its rights under Section D5.01, the RECIPIENT shall:

(1) subject to [***], transfer and assign, and does hereby assign, all of its right, title and interest in and to the applicable Project Results to the INSTITUTE or the INSTITUTE's designee, to the maximum extent allowed by law, including where relevant and necessary to facilitate the foregoing transfer, requesting and diligently attempting to obtain any approvals required by law or otherwise in relation to such transfer, and subject to [***], hereby grants to the INSTITUTE a non-exclusive, royalty-free, perpetual, fully transferable and sublicensable license under any Institute-Funded Technology and Necessary Additional IPR to Exploit the Project Results for the development, manufacture and sale of Commercial Products and Commercial Services and for all other purposes reasonably related thereto;

(2) to the extent that RECIPIENT is unable to transfer all of its right, title and interest in and to the applicable Project Results to the INSTITUTE as specified in Section D5.03(1), and subject to [***], RECIPIENT hereby grants to the INSTITUTE an exclusive, royalty-free, perpetual, fully transferable and sublicensable license under the Applicable Institute-Funded IPR to Exploit the Project Results for the development, manufacture and sale of Commercial Products and Commercial Services and for all other purposes reasonably related thereto, provided that the INSTITUTE may exercise the foregoing rights only after exercising its right under Section D5.01;

(3) cooperate with the INSTITUTE's efforts, and at the INSTITUTE's cost, in protecting Applicable Institute-Funded IPR and Institute-Funded Technology, and in commercializing or otherwise bringing to practical application the applicable Project Results, including making relevant Recipient Personnel (to the extent still obligated to RECIPIENT), Contractors, Collaborators, records (including without limitation, laboratory notebooks, electronic records and data), papers, information, samples, specimens and other materials related to the applicable Project Results reasonably available for such purposes and executing any documents and taking any further action reasonably necessary to effectuate the intent of this Section D5.03; and

(4) subject to applicable law, not take any action that would oppose or impede the INSTITUTE's ability to protect the applicable Project Results.

If the INSTITUTE exercises its rights under Sections D5.01, the RECIPIENT shall have no further claim to or interest in the applicable Project Results, except as set forth in Section D2.01 of this Attachment and shall not be entitled to any share of Revenue or any other compensation with respect to such Project Results, except to the minimum extent required by law, if any. To the extent that the INSTITUTE has exercised its rights under Section D5.01 and RECIPIENT is unable to transfer all of its right, title and interest in and to the applicable Project Results to the INSTITUTE as specified in D5.03(1), then the INSTITUTE's license set forth in D5.03(2) includes the right, but not the obligation, for the INSTITUTE at its cost to: (i) direct the filing, prosecution and maintenance of patents covering the applicable Project Results, and (ii) enforce all Applicable Institute-Funded IPR relevant to the Project Results against any infringement by a third party. Subject to the statutory duties of the Texas Attorney General, if any, RECIPIENT shall cooperate fully with the INSTITUTE in any action brought by the INSTITUTE to enforce the Institute-Funded IPR in the applicable Project Results, at the INSTITUTE's cost, including without limitation, joining the enforcement action in name as a party plaintiff after all required approvals are obtained; provided that the INSTITUTE or its designee shall have full control over such enforcement action and shall receive and retain all monetary and other recoveries resulting from such enforcement actions, including any punitive damages.

PART 6
DEFINITIONS

Throughout this Attachment D, the following underlined terms shall have the meanings given below.

(1) **Commercial Product** means anything that is based on, utilizes or is developed from, or materially incorporates, the Project Results and that is capable of being sold, licensed, transferred or conveyed to another party or is capable of otherwise being Exploited or disposed of, whether in exchange for consideration or not.

(2) **Commercial Service** means any service performed that is based on, utilizes or is developed from, or materially incorporates, the Project Results. For clarity, Commercial Service does not include non¬commercial research and development performed by RECIPIENT or its Collaborators or licensees.

(3) **Cumulative Revenue** means after the First Commercial Sale worldwide of a Commercial Product or Commercial Service, the sum of all Revenue in all years and calendar quarters up to the calendar quarter in which the applicable revenue sharing percentage in Section D4.01 is being paid.

(4) **Exclusive License** means a License Agreement under which the specific rights granted to the licensee with respect to the Project Results, including without limitation scope of use and territorial rights, are granted on an exclusive basis.

(5) **Exclusivity** means any exclusivities granted by the government in a country to provide an entity with protection from competitors in the commercial market for a defined period of time, including but not limited to patent-based exclusivities (and any patent term extensions, supplementary protection certificates or patent term adjustments thereof, and the like), and market-based "data" exclusivities (e.g., orphan drugs, new chemical entities, biologics, new formulations or combinations, and pediatric, and the like). For the avoidance of doubt, Exclusivity shall not mean any protection gained solely from either trade secrets or trademarks.

(6) **Exploit** or **Exploitation** means make, have made, use, sell, offer to sell, import, export, or otherwise commercialize, dispose of, practice, copy, distribute, create derivative works of, publicly perform or publicly display.

(7) **First Commercial Sale** means the first bona fide arm's length Sale of a Commercial Product or Commercial Service to a Third Party by or on behalf of RECIPIENT or its licensees for monetary value, for use or consumption by the end user of such Commercial Product or Commercial Service. For clarity, Sales of a Commercial Product or Commercial Service for registration samples, clinical trial purposes or compassionate use sales, named patient use, test marketing, sampling and promotional uses, inter-company transfers to affiliates of RECIPIENT or its licensees, shall not constitute a First Commercial Sale.

(8) **Grant Award Proceeds** means the sum of all monies paid by INSTITUTE to RECIPIENT under the Contract. For clarity, Grant Award Proceeds will not be diminished by the amount of any funds repaid to INSTITUTE by RECIPIENT under Section 4.07 of the Contract.

(9) **Institute-Funded IPR** means any and all Intellectual Property Rights in and to Institute-Funded Technology. In no event shall Institute-Funded IPR include any intellectual property rights and/or technology in existence and owned/controlled by the RECIPIENT prior to the receipt of funds from the INSTITUTE or arising from activities conducted independently of the Project or acquired independently of the Project.

(10) **Institute-Funded Invention** means an Invention conceived or first reduced to practice by or on behalf of RECIPIENT, including by Recipient Personnel, Contractor(s) and/or Collaborator(s) in the performance of Institute-Funded Activity.

(11) **Institute-Funded Technology** means any and all of the following resulting or arising, in whole or in part, from Institute-Funded Activity during the Contract term: (a) proprietary and confidential information, including but not limited to data, trade secrets, materials and know-how; (b) databases, compilations and collections of data; (c) tools, methods and processes; and (d) works of authorship, excluding all scholarly works, but including, without limitation, computer programs, source code and executable code, whether embodied in software, firmware or otherwise, documentation, files, records, data and mask works; and all instantiations of the foregoing in any form and embodied in any form, including but not limited to therapeutics, drugs, drug delivery systems, drug

formulations, devices, diagnostics, biomarkers, reagents, methodologies and research tools. Institute-Funded Technology includes Institute-Funded Inventions. Institute-Funded Technology shall not include items that were conceived of, in existence, or owned/controlled by RECIPIENT prior to receipt of funds from the INSTITUTE or arising from activities conducted independently of the Project or acquired independently of the Project, such as: (a) proprietary and confidential information, including but not limited to data, trade secrets, materials and know-how; (b) databases, compilations and collections of data; (c) tools, methods and processes; and (d) works of authorship, excluding all scholarly works, but including, without limitation, computer programs, source code and executable code, whether embodied in software, firmware or otherwise, documentation, files, records, data and mask works; and all instantiations of the foregoing in any form and embodied in any form, including but not limited to therapeutics, drugs, drug delivery systems, drug formulations, devices, diagnostics, biomarkers, reagents, methodologies and research tools.

(12) **Intellectual Property Rights** or **IPR** means any and all of the following and all rights in, arising out of, or associated therewith: (a) all United States and foreign patents and utility models and applications therefor, and all reissues, re-examinations, divisionals, renewals, substitutions, extensions, provisionals, continuations and continuations-in part thereof, and equivalent or similar rights anywhere in the world in inventions and discoveries; (b) all trade secrets and rights in know-how, materials and proprietary information; (c) all copyrights, copyright registrations and applications therefor, and all other rights corresponding thereto throughout the world; (d) all mask works, mask work registrations and applications therefor, and any equivalent or similar rights in semiconductor masks, layouts, architectures or topology; and (e) any similar, corresponding or equivalent rights to any of the foregoing anywhere in the world.

(13) **Invention** means any idea, composition of matter, method, device, process or discovery that is conceived and/or reduced to practice, whether patentable or not.

(14) **License Agreement** means an agreement by which an owner of a Project Result grants any right to Exploit such Project Result to a Third Party in exchange for consideration.

(15) **Licensing Activities** means the efforts of RECIPIENT or its Collaborator to negotiate, execute or enforce a License Agreement.

(16) **Major Market Country** means one or more of the following: [***].

(17) **Necessary Additional IPR** means any Intellectual Property Rights (a) owned by RECIPIENT, and (b) identified by the Institute and agreed to in writing by RECIPIENT, that are not Project Results but are necessary to Exploit the Project Results for the specific purposes set forth in the applicable Section of this Attachment D.

(18) **Project Results** means any and all Institute-Funded Technology and Institute-Funded IPR.

(19) **Revenue** means the gross consideration, whether cash (for example, but not by way of limitation, any milestone fees, license fees, sublicense fees, or assignment fees) or non-cash (for example, but not by way of limitation, securities, direct equity interest, indirect equity interest, trade or barter considerations, and the like), received from Sales to a Third Party by or on behalf of the RECIPIENT and its licensees (including RECIPIENT's affiliates and sublicensees of RECIPIENT's licensee), net of: (a) trade or quantity discounts or rebates, credits, allowances or refunds given for rejected or returned Commercial Products or Commercial Services, (b) any sales, value-added or other tax or governmental charge levied on the sale, transportation or delivery of a Commercial Product or Commercial Service (but excluding any income tax owed by the RECIPIENT), and (c) any separately stated charges for freight, postage, shipping and insurance. The foregoing notwithstanding, any consideration: (i) received and used by RECIPIENT or its licensees for the purpose of research or development of Commercial Products and Commercial Services, or (ii) received from Sales made solely in the performance of clinical trials designed to obtain regulatory approval for a Commercial Product or Commercial Service, or (iii) received by RECIPIENT or its licensees from Sales made for compassionate use where no profit was obtained by RECIPIENT or its licensees shall not be included in this term.

(20) **Revenue Term** means the period commencing on the date of the First Commercial Sale of a Commercial Product or Commercial Service and ending, on a country-by-country basis, when there is not, or there no longer exists, any Exclusivity for the Commercial Product or Commercial Service in such country. If there is no Exclusivity for a Commercial Product or Commercial Service in any Major Market Country, the Revenue Term shall mean the period commencing on the date of the First Commercial Sale of such Commercial Product or Commercial Service and ending [***] later.

(21) **Sale** or **Sales** means any sale, license, lease, transfer, conveyance or other Exploitation or disposition of a Commercial Product or Commercial Service for which consideration from a first Third Party is received. For clarity, transfer or assignment of a Commercial Product or Commercial Service in connection with a merger, consolidation, transfer or sale of all, or substantially all, of RECIPIENT's business or assets, or change of control or similar transaction involving the RECIPIENT will not constitute a Sale.

(22) **Third Party** means a party other than (a) the RECIPIENT, (b) any affiliate or licensee of the RECIPIENT, either directly or through any sublicenses, or (c) an entity that enjoys any special course of dealing with any of (a) or (b) above.

Other terms may be defined elsewhere in this Attachment or in the Contract.

ATTACHMENT E
REPORTING REQUIREMENTS

This Attachment E is hereby incorporated into and made a part of that certain CANCER RESEARCH GRANT CONTRACT ("Contract") by and between the Cancer Prevention and Research Institute of Texas ("CPRIT" or the "INSTITUTE") and the RECIPIENT. A capitalized term used in this Attachment shall have the meaning given to term in the Contract or in the Attachments to the Contract, unless otherwise defined herein. In the event of a conflict between the provisions of this Attachment and the provisions of the Contract, this Attachment shall control.

INSTITUTE and RECIPIENT agree as follows:

ANNUAL REPORTING

Section E1.01 Annual Reports. The RECIPIENT shall submit reports annually to the INSTITUTE within [***] of the anniversary of the Effective Date of this Contract or at such other time as may be specified herein. The reports shall be submitted by the means and in the form(s) required by the INSTITUTE and shall be signed by the Principal Investigator/Program Director and the RECIPIENT's Authorized Signing Official. To the extent possible, the reports shall only include information that may be shared publicly. However, if it is necessary to submit information in the reports that the RECIPIENT considers confidential in order to fully comply with the terms of this Contract, then the RECIPIENT shall use reasonable efforts to mark such information as "confidential" and shall, to the extent practicable, to segregate such information within the reports to facilitate its redaction should redaction ever be necessary or appropriate.

Section E1.02 Contents of Reports. Each report shall contain a signed verification (electronic signature is acceptable) of RECIPIENT's compliance with each of its obligations as set forth in the Contract and shall include the following for the period covered by such report, as may then be applicable:

(a) Project Data. During the term of the Contract, RECIPIENT shall include in its annual report each of the following (except that the final annual report due under this part (a) shall be due within [***] after the end of the term of the Contract):

(1) A brief statement of the progress made to under the Scope of Work, including the progress to achieve the Project Goals and Timelines set forth in Attachment A.
(2) A brief statement of the Project Goals for the twelve months following submission of the report.
(3) New jobs created in the preceding twelve month period as a result of the Grant funds awarded to RECIPIENT.
(4) An inventory of the Equipment purchased for the Project using Grant funds.
(5) A HUB report in accordance with Section 3.08 "Historically Underutilized Businesses" of the Contract.

(b) Commercialization Data. During the term of the Contract and continuing thereafter for so long as RECIPIENT has ongoing obligations to the INSTITUTE with respect to protection, development, commercialization and licensing of Project Results pursuant to Attachment D, RECIPIENT shall provide information about commercialization activities in a format specified by the INSTITUTE.

(c) Revenue Sharing Data. During the term of the Contract and continuing thereafter for so long as RECIPIENT has ongoing obligations to the INSTITUTE with respect to revenue sharing pursuant to Attachment D:

(1) A statement of the identities of the funding sources, amounts and dates of funding for all funding sources for the Project.
(3) A brief statement of the RECIPIENT's efforts to secure additional funds to support the Project.

(4) All financial information necessary to verify the calculation of the revenue sharing amounts specified in Attachment D.

(d) Additional Data. In addition to the foregoing, RECIPIENT shall use commercially reasonable efforts to also promptly report any other information required by this Contract or otherwise reasonably requested by the INSTITUTE, the Legislature, or any other funding or regulatory bodies covering the RECIPIENT's activities under this Contract.

Section E1.03 Record Keeping and Audits. The provisions of Article IV of the Contract shall apply fully to all information reported to the INSTITUTE pursuant to this Attachment, except that the right of the State of Texas to audit and the RECIPIENT's obligation to maintain Records shall continue until four years after the date of each such report made by RECIPIENT hereunder.

Section E1.04 Confidentiality of Documents and Information. The provisions of Section 2.13 "Confidentiality of Documents and Information" of the Contract shall apply fully to all Confidential Information reported, delivered or submitted to the INSTITUTE pursuant to this Attachment E.

Grant ID:
DP160071
PI/PD/CR: Jason Kim
Organization: Molecular Templates, Inc.

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

Approved Contract Documents

Title	Approved By	Approved Date
Product Development Base Contract	Kim, Jason	04 Sep 2018
Attachment A - Goals and Objectives	Nelson, Lisa	06 Sep 2018
Attachment B - Verification Request of Contract Document	Kim, Jason	07 Sep 2018
Attachment C Part 1 - Assurances and Certifications	Kim, Jason	31 Aug 2018
Attachment C Part 2 - Matching Compliance Certification	Lansdowne, Bob	07 Sep 2018
Attachment D - Intellectual Property and Revenue Sharing	Kim, Jason	04 Sep 2018
Attachment E - Reporting Requirements	Kim, Jason	04 Sep 2018
Chief Executive Officer Approval	Roberts, Wayne	18 Sep 2018

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

As indicated by the signatures below, the INSTITUTE and the RECIPIENT agree to the following amendments to the CPRIT Contract:

Contract Document F: I. Amendments to CANCER RESEARCH GRANT CONTRACT (A) In Article 1, DEFINITIONS, delete Section (6) (Institute-Funded Activity) in its entirety and replace it with amended Section (6) shown below: (6) Institute-Funded Activity - all aspects of work funded by the Institute and conducted as part of the Project as set forth in the Project Description and/or Scope of Work (Attachment A). (B) In Article 1, DEFINITIONS, amend Section (9) (Project), after "the activities specified" to delete the term "or generally" and replace it with -- and --. Amended Section (9) is shown below: (9) Project - the activities specified and described in the Scope of Work or otherwise in this Contract (including without limitation any of the Attachments to the Contract) that are approved by the INSTITUTE for funding, regardless of whether the of the financial support necessary to carry them out. II. Amendments to Attachment A: PROJECT DESCRIPTION, GOALS AND TIMELINES (SCOPE OF WORK) – (A) On the Timeline page of Attachment A, insert the following note in the [***]. III. Amendments to Attachment D: INTELLECTUAL PROPERTY AND REVENUE SHARING (A) In Part 1, Section D1.01, delete the section in its entirety and replace it with amended Section D1.01 shown below: Section D1.01 Ownership of Project Results. RECIPIENT and its Collaborators, and (to the extent applicable) any third party participating in the research, development or commercialization of [***], shall with respect to INSTITUTE [***] Institute-Funded Technology and the Institute-Funded IPR, subject to the terms of the Contract. (B) In Part 1, Section D1.02, first sentence, delete "third Party" and replace with --Third Party--; after "or transfer or assignment is to occur," insert -- under provisions of confidentiality and redacted for (a) [***] and (b) other confidential subject matter on a case-by-case basis with approval of the INSTITUTE. --; and in the second sentence, move "to" (after "writing") to directly follow "(i)"; insert "to" directly after (ii); directly after (iii), delete "be responsible for and pay" and replace it with -- that --; and after "under Part 4 of this Attachment D," insert -- will be paid by[***]. Amended Section D1.02 is shown below: Section D1.02 Transfer or Assignment of Rights to a Third Party. RECIPIENT shall notify the INSTITUTE of any proposed transfer or assignment of rights in any Project Results to a Third Party and provide to INSTITUTE a copy of the agreement under which the proposed transfer or assignment is to occur, under provisions of confidentiality and redacted for (a) [***] and (b) other confidential subject matter on a case-by-case basis with approval of the INSTITUTE. RECIPIENT shall ensure that, in any assignment or transfer of Project Results, the transferee or assignee agrees in writing: (i) to recognize that the Institute-Funded IPR and Institute-Funded Technology, as applicable, is transferred or assigned subject to the licenses, interests and other rights in such Project Results provided to the INSTITUTE in the Contract and any applicable law or regulation, (ii) to take all actions necessary to protect all such licenses, interests and other rights, and (iii) that all amounts required under Part 4 of this Attachment D will be paid [***]. Any attempted transfer or assignment of rights in any Project Results to a Third Party without written agreement to the conditions in (i) – (iii) above shall be null, void and of no effect. (C) In Part 1, Section D1.03, first sentence, after "RECIPIENT shall use commercially reasonable efforts," insert -- including, as applicable, [***], --; and in the third sentence, after "Upon notice of the aforesaid, the INSTITUTE shall have the right, but not the obligation," insert -- subject to IPR ownership rights of [***] and [***] in and to [***], --. Amended Section D1.03 is shown below: Section D1.03 Protection of Institute-Funded IPR. Subject to Section D5.01, RECIPIENT shall use commercially reasonable efforts, including, as applicable, [***], to appropriately protect the Institute-Funded IPR, including without limitation, diligently seeking registration and maintenance of patents and copyrights covering the Institute-Funded Technology, as appropriate. If RECIPIENT elects to abandon any patent applications filed or patents issued covering any Institute-Funded Technology in any Major Market Country, RECIPIENT shall provide the INSTITUTE with prior written notice of such election, with sufficient time (but no less than [***]) for the INSTITUTE to exercise its rights under this Section D1.03 with respect thereto. Upon notice of the aforesaid, the INSTITUTE shall have the right, but not the obligation, subject to IPR ownership rights of [***] and [***] in and to [***], to pursue protection of the applicable Institute-Funded Technology on its own behalf in such Major Market Country, including directing the filing, prosecution and maintenance of patent applications or patents covering the applicable Institute-Funded Inventions in any of such Major Market Countries for which the INSTITUTE exercises

its rights under this Section D1.03. In the Major Market Countries where the INSTITUTE pursues protection of the Institute-Funded Technology under this Section D1.03, RECIPIENT agrees to grant, and does hereby grant, to the INSTITUTE a non-exclusive, irrevocable, royalty-free, perpetual license with right to sublicense in the applicable Major Market Countries to the applicable Instituted-Funded Technology and any applicable Project Results. For clarification, a determination by RECIPIENT to (i) abandon a patent application in favor of a continuation or divisional application or the like, or (ii) narrow the scope of the claimed subject matter, shall not be deemed an election to abandon such Institute-Funded IPR. (D) In Part 1, Section D1.05(a), first sentence, after "within [***] after RECIPIENT receives or generates it" insert -- , unless agreed to otherwise by INSTITUTE --. Amended Section D1.05(a) is shown below: Section D1.05 Inventions. (a) Disclosures and Patent Applications. RECIPIENT shall notify INSTITUTE of each Institute-Funded Invention by delivering to INSTITUTE a copy of the invention disclosure within [***] after RECIPIENT receives or generates it, unless agreed to otherwise by INSTITUTE. In the event that a patent application is filed on the invention disclosure, RECIPIENT shall provide the INSTITUTE with a complete copy of such patent application and associated filing documents within [***] of its filing. (E) In Part 2, Section D2.01, first sentence, after "(including material embodiments thereof" insert -- [***] --. Amended Section D2.01 is shown below: Section D2.01 RECIPIENT License. In granting an Exclusive License to any Project Results, RECIPIENT shall retain the right to Exploit all Project Results (including material embodiments thereof [***]) for education, research and other non-commercial purposes, and the right to grant the licenses pursuant to Section D2.02 below. (F) In Part 2, Section D2.02, delete this section in its entirety and replace with the following amended Section D2.02, as shown below: Section D2.02 INSTITUTE License. RECIPIENT hereby grants to the INSTITUTE a non-exclusive, irrevocable, royalty-free, perpetual, worldwide license, solely for academic, non-commercial purposes, under the Project Results and to Exploit any Necessary Additional IPR, said license specifically [***], and with a right to sublicense to a permitted sublicensee of the INSTITUTE, consisting of other governmental entities and agencies of the State of Texas, and private or independent institutions of higher education (as defined by Texas law) located in Texas, for education, research and other non-commercial purposes only, pursuant to industry-standard confidentiality and/or material transfer agreements to be entered into between the parties, as applicable. RECIPIENT shall make all non-excluded Institute-Funded Technology available by reasonable means to the INSTITUTE in order for the INSTITUTE to exercise its rights under this Section D2.02, at no cost to RECIPIENT. A copy of any written sublicense granted by INSTITUTE under this Section D2.02 will be provided to RECIPIENT by INSTITUTE within [***] of the effective date of such sublicense. (G) In Part 2, Section D2.03, delete this section in its entirety and replace with the following amended Section D2.03, as shown below: Section D2.03 No Implied Licenses. No implied licenses are granted under this Contract including without limitation any license to any Intellectual Property Rights owned or controlled by RECIPIENT or [***] or [***] outside of the Institute-Funded IPR. Nothing in this Attachment D to the Contract shall be construed to impose an obligation on RECIPIENT to license or otherwise make available any of its Intellectual Property Rights or other resources owned or controlled by it except as expressly provided in this Attachment. (H) In Part 3, Section D3.01, first sentence, delete "enhance" and replace it with -- implement --; and after "to commercialize or otherwise bring to practical application" insert -- at least one Commercial Product directed to the molecular target described in the --. Amended Section D3.01 is shown below: Section D3.01 Commercialization Strategy. RECIPIENT shall be under a continuing obligation throughout the term of this Contract to implement and improve the commercial development plan submitted with the Application and to provide an annual written report to the INSTITUTE regarding the RECIPIENT's and its licensee's efforts to commercialize or otherwise bring to practical application at least one Commercial Product [***] Project Results. The INSTITUTE may, at its option and at any time, provide RECIPIENT with comments regarding the RECIPIENT's commercial development plan and strategy, in which case RECIPIENT shall consider in good faith and, if appropriate, use reasonable efforts to account for and incorporate the INSTITUTE's input into such commercial development plan and strategy. (I) In Part 3, Section D3.02, second sentence, after "considered to be" insert -- diligent and commercially reasonable efforts --. Amended Section D3.02 is shown below: Section D3.02 Commercialization Efforts. The RECIPIENT shall, including whether through its own efforts or the efforts of a licensee under a License Agreement allowed by the terms of this Attachment, use diligent and commercially reasonable efforts to commercialize at least one Commercial Product or Commercial Service or otherwise bring to practical application the Project Results in accordance with the commercial

development plan submitted with the Application and including any changes to such commercial development plan in accordance with Section D3.01. For the avoidance of doubt, partnering or licensing activities shall be considered to be diligent and commercially reasonable efforts to commercialize. (J) In Part 3, Section D3.03, first sentence, delete "(i)"; at line 4, after "Contract," delete "[***] and replace with -- [***] --; in the second sentence, after "the reporting obligations set forth in Attachment E" insert -- to this Contract --; and after the last sentence, insert -- "[***] -- Amended Section D3.03 is shown below: Section D3.03 Licensing of Project Results. Each License Agreement entered into by the RECIPIENT shall include an acknowledgement by the licensee that such License Agreement is subject to the INSTITUTE's licenses, interests and other rights under this Contract, [***]. In addition, all License Agreements shall include terms obligating the licensee to report to the RECIPIENT such information as is required for the RECIPIENT to fully comply with the terms of the Contract, including without limitation the reporting obligations set forth in Attachment E to this Contract, and to allow RECIPIENT to make the grants specified in Sections D2.02. The RECIPIENT shall monitor the performance of its licensees and such licensees' compliance with the terms of the License Agreements and shall take commercially reasonable actions to enforce the terms of all License Agreements. The RECIPIENT shall [***] report to the INSTITUTE any material breach of a License Agreement relating to or affecting any of the material provisions of this Contract. [***] (K) In Part 3, Section D3.06, first sentence, after "commercialize or otherwise bring to practical application" insert -- [***] --; and in the last sentence, after "is making efforts to commercialize at least one Commercial Product or Commercial Service" insert -- [***] --. Amended Section D3.06 is shown below: Section D3.06 Recipient Opt-Out. In the event RECIPIENT determines, after diligently attempting to comply with the terms of Section D3.02, to cease its efforts, either directly or through a licensee, to commercialize or otherwise bring to practical application [***] the Project Results, it will so notify the INSTITUTE in writing promptly thereafter. Such written notice must identify the Project Results and provide a reasonable explanation of the reasons for the RECIPIENT's election. Upon receipt of such notice, the INSTITUTE and RECIPIENT shall meet within [***] to review the Project Results and rationale for the RECIPIENT's election. Provided that RECIPIENT's determination to cease its efforts was not based on material safety concerns related to the Project Results, the INSTITUTE and RECIPIENT shall engage in good faith negotiations regarding an alternative commercialization strategy and/or revenue sharing approach. The INSTITUTE and RECIPIENT may consider, among other options, an award of equity in the RECIPIENT, expansion or modification of the Institute Funded Activity to cover other commercial products or commercial services being advanced by the RECIPIENT, or some combination thereof. Unless otherwise agreed, if the INSTITUTE and RECIPIENT are unable to achieve an alternative strategy or agreement within [***] of the RECIPIENT's initial notice of election, and provided that RECIPIENT's determination to cease its efforts was not based on material safety concerns related to the Project Results, the INSTITUTE shall have the right, but not the obligation, to exercise its rights in Section D5.01 in relation to the Project Results at the INSTITUTE's expense. If the INSTITUTE elects to exercise its rights under Section D5.01 in relation to the Project Results, the INSTITUTE shall notify the RECIPIENT in writing within [***] of INSTITUTE's receipt of the RECIPIENT's initial notice of election or [***] following a declaration by one of the Parties that good faith negotiations have failed. In the event that the INSTITUTE exercises its option under this Section D3.06, the RECIPIENT shall cooperate with the INSTITUTE's efforts and provide to INSTITUTE sufficient information such as relevant feasibility studies, trial results, regulatory summaries, and pertinent schedules or deadlines in relation to the Project Results, in commercializing or otherwise bringing to practical application the applicable Project Results at the INSTITUTE's cost. For clarity, so long as the RECIPIENT is making efforts to commercialize at least one Commercial Product or Commercial Service [***], RECIPIENT shall have no obligation to provide the written notice as described in this Section D3.06. (L) In Part 5, Section D5.01, delete this section in its entirety and replace with amended Section D5.01, as shown below: Section D5.01 RECIPIENT Opt-Out. If the INSTITUTE elects to exercise its rights in relation to the Project Results under Section D3.06, the INSTITUTE shall have the right, but not the obligation, to pursue protection of the applicable Institute-Funded IPR on its own behalf, including directing the filing, prosecution and maintenance of patents covering the applicable Institute-Funded Inventions and/or to commercialize or otherwise bring to practical application Project Results covered by the applicable Institute-Funded IPR, at its own cost, either directly or through one or more licensees. If the INSTITUTE elects to exercise any such rights under this Section D5.01, it shall notify RECIPIENT in writing pursuant to the notification requirements in Section D3.06 and RECIPIENT shall thereafter

comply with the terms of Section D5.03 with regard to all applicable Institute-Funded IPR in which RECIPIENT has a right to assign or license. (M) In Part 5, Section D5.02, replace each of three occurrences of "3.06" with -- D3.06 --. Amended Section D5.02 in relevant part is shown below: Section D5.02 RECIPIENT Default. In the event that the INSTITUTE notifies RECIPIENT in writing of RECIPIENT's failure to materially comply with its obligations under Section D3.02, and RECIPIENT fails within [***] of such notice either: (a) to cure such failure, or in the event that such failure cannot be reasonably cured within such [***] period, to provide to INSTITUTE a plan to cure such failure that INSTITUTE deems acceptable, (b) to provide written notice to the INSTITUTE that such failure was due to material safety concerns, or (c) to provide proper notice pursuant to Section D3.06, then without further action on the part of the RECIPIENT or INSTITUTE, the RECIPIENT shall be deemed to have provided the INSTITUTE the complete, written notice of its cessation of efforts as described in Section D3.06, and the INSTITUTE shall be free to exercise its rights under Section D3.06. (N) In Part 5, Section D5.03, delete this section in its entirety and replace with the following amended Section D5.03, as shown below: Section D5.03 RECIPIENT Cooperation upon Opt-Out or Default. In the event that the INSTITUTE exercises any of its rights under Section D5.01 or D5.02, the RECIPIENT shall: (1) subject to [***], transfer and assign, and does hereby assign, all of its right, title and interest in and to the applicable Institute-Funded IPR to the INSTITUTE or the INSTITUTE's designee, to the maximum extent allowed by law, including where relevant and necessary to facilitate the foregoing transfer, requesting and diligently attempting to obtain any approvals required by law or otherwise in relation to such transfer, and subject to [***], hereby grants to the INSTITUTE a non-exclusive, royalty-free, perpetual, fully transferable and sublicensable license under any Institute-Funded Technology and Necessary Additional IPR to Exploit the Institute-Funded IPR and Institute-Funded Technology for the development, manufacture and sale of Commercial Products and Commercial Services and for all other purposes reasonably related thereto; (2) to the extent that RECIPIENT is unable to transfer all of its right, title and interest in and to the applicable Institute-Funded IPR to the INSTITUTE as specified in Section D5.03(1), and subject to [***], RECIPIENT hereby grants to the INSTITUTE an exclusive, royalty-free, perpetual, fully transferable and sublicensable license under the applicable Institute-Funded IPR to Exploit the applicable Institute-Funded IPR and Institute-Funded Technology for the development, manufacture and sale of Commercial Products and Commercial Services and for all other purposes reasonably related thereto, provided that the INSTITUTE may exercise the foregoing rights only after exercising its right under Section D5.01; (3) cooperate with the INSTITUTE's efforts, and at the INSTITUTE's cost, in protecting applicable Institute-Funded IPR and Institute-Funded Technology, and in commercializing or otherwise bringing to practical application the applicable Project Results (subject to [***]), including making relevant Recipient Personnel (to the extent still obligated to RECIPIENT), Contractors, Collaborators, records (including without limitation, laboratory notebooks, electronic records and data), papers, information, samples, specimens and other materials related to the applicable Project Results reasonably available for such purposes and executing any documents and taking any further action reasonably necessary to effectuate the intent of this Section D5.03; and (4) subject to applicable law, not take any action that would oppose or impede the INSTITUTE's ability to protect the applicable Institute-Funded IPR. If the INSTITUTE exercises its rights under Sections D5.01, the RECIPIENT shall have no further claim to or interest in the applicable Project Results, except as set forth in Section D2.01 of this Attachment and shall not be entitled to any share of Revenue or any other compensation with respect to such Project Results, except to the minimum extent required by law, if any. To the extent that the INSTITUTE has exercised its rights under Section D5.01 and RECIPIENT is unable to transfer all of its right, title and interest in and to the applicable Project Results to the INSTITUTE as specified in D5.03(1), then the INSTITUTE's license set forth in D5.03(2) includes the right, but not the obligation, and subject to [***] and [***] in and to [***], for the INSTITUTE at its cost to: (i) direct the filing, prosecution and maintenance of patents covering the applicable Project Results, and (ii) enforce all applicable Institute-Funded IPR relevant to the Project Results against any infringement by a third party. Subject to the statutory duties of the Texas Attorney General, if any, RECIPIENT shall cooperate fully with the INSTITUTE in any action brought by the INSTITUTE to enforce the Institute-Funded IPR in the applicable Project Results, at the INSTITUTE's cost, including without limitation, joining the enforcement action in name as a party plaintiff after all required approvals are obtained; provided that the INSTITUTE or its designee shall have full control over such enforcement action and shall receive and retain all monetary and other recoveries resulting from such enforcement actions, including any punitive damages. (O) Part 6, Definitions, is amended to add new Sections

(3), (5), (22) and (23); to amend Sections (11) - (14); and original sections have been renumbered to preserve consecutive numbering. Accordingly, Part 6, Definitions is deleted in its entirety and replaced with the following amended Part 6, Definitions, as shown below: PART 6 DEFINITIONS Throughout this Attachment D, the following underlined terms shall have the meanings given below. (1) Commercial Product means anything that is based on, utilizes or is developed from, or materially incorporates, the Project Results and that is capable of being sold, licensed, transferred or conveyed to another party or is capable of otherwise being Exploited or disposed of, whether in exchange for consideration or not. (2) Commercial Service means any service performed that is based on, utilizes or is developed from, or materially incorporates, the Project Results. For clarity, Commercial Service does not include non- commercial research and development performed by RECIPIENT or its Collaborators or licensees. (3) CPRIT Project No. CC121020 Institute-Funded IPR means any and all Intellectual Property Rights in the following, resulting or arising from Institute-Funded Activity during the CPRIT Project No. CC121020 Contract term: international patent applications [***] and [***], and related (a) proprietary and confidential information, including but not limited to data, trade secrets and know-how; (b) databases, compilations and collections of data; (c) tools, methods and processes; and (d) works of authorship, excluding all scholarly works, but including, without limitation, computer programs, source code and executable code, whether embodied in software, firmware or otherwise, documentation, files, records, data and mask works; and all applications of the foregoing in any form and embodied in any form, including but not limited to therapeutics, drugs, drug delivery systems, drug formulations, devices, diagnostics, biomarkers, reagents and research tools. In no event shall Institute-Funded Technology include items that were conceived of, in existence, or owned/controlled by RECIPIENT prior to receipt of funds from the INSTITUTE to the RECIPIENT for Project No. CC121020. (4) Cumulative Revenue means after the First Commercial Sale worldwide of a Commercial Product or Commercial Service, the sum of all Revenue in all years and calendar quarters up to the calendar quarter in which the applicable revenue sharing percentage in Section D4.01 is being paid. (5) [***] means proprietary information, data, results, technologies, Inventions, materials, molecules and compositions owned, licensed or otherwise controlled by RECIPIENT's [***] or [***]. For the sake of clarity, "[***]" does not include CPRIT Project No. CC121020 Institute-Funded IPR. (6) Exclusive License means a License Agreement under which the specific rights granted to the licensee with respect to the Project Results, including without limitation, scope of use and territorial rights, are granted on an exclusive basis. (7) Exclusivity means any exclusivities granted by the government in a country to provide an entity with protection from competitors in the commercial market for a defined period of time, including but not limited to patent-based exclusivities (and any patent term extensions, supplementary protection certificates or patent term adjustments thereof, and the like), and market-based "data" exclusivities (e.g., orphan drugs, new chemical entities, biologics, new formulations or combinations, and pediatric, and the like). For the avoidance of doubt, Exclusivity shall not mean any protection gained solely from either trade secrets or trademarks. (8) Exploit or Exploitation means make, have made, use, sell, offer to sell, import, export, or otherwise commercialize, dispose of, practice, copy, distribute, create derivative works of, publicly perform or publicly display. (9) First Commercial Sale means the first bona fide arm's length Sale of a Commercial Product or Commercial Service to a Third Party by or on behalf of RECIPIENT or its licensees for monetary value, for use or consumption by the end user of such Commercial Product or Commercial Service. For clarity, Sales of a Commercial Product or Commercial Service for registration samples, clinical trial purposes or compassionate use sales, named patient use, test marketing, sampling and promotional uses, inter- company transfers to affiliates of RECIPIENT or its licensees, shall not constitute a First Commercial Sale. (10) Grant Award Proceeds means the sum of all monies paid by INSTITUTE to RECIPIENT under the Contract. For clarity, Grant Award Proceeds will not be diminished by the amount of any funds repaid to INSTITUTE by RECIPIENT under Section 4.07 of the Contract. (11) Institute-Funded IPR means any and all Intellectual Property Rights in and to Institute-Funded Technology pertaining to RECIPIENT Proprietary Technologies. In no event shall Institute-Funded IPR include [***]. Institute-Funded IPR also shall not include RECIPIENT Background IPR and/or technology in existence and (a) owned/controlled by the RECIPIENT prior to the receipt of funds from the INSTITUTE under this Agreement; (b) arising from activities conducted independently of a CPRIT funded Project, including CPRIT Project No. CC12010; or (c) acquired independently of the Project. (12) Institute-Funded Invention means an Invention conceived by or on behalf of RECIPIENT, including by Recipient Personnel, Contractor(s) and/or Collaborator(s) in the performance of Institute-Funded Activity. (13) Institute-Funded

Technology means any and all of the following resulting or arising, in whole or in part, from Institute-Funded Activity during the Contract term: (a) proprietary and confidential information, including but not limited to data, trade secrets, materials and know-how; (b) databases, compilations and collections of data; (c) tools, methods and processes; and (d) works of authorship, excluding all scholarly works, but including, without limitation, computer programs, source code and executable code, whether embodied in software, firmware or otherwise, documentation, files, records, data and mask works; and all instantiations of the foregoing in any form and embodied in any form, including but not limited to therapeutics, drugs, drug delivery systems, drug formulations, devices, diagnostics, biomarkers, reagents, methodologies and research tools. Institute-Funded Technology includes Institute-Funded Inventions. Institute-Funded Technology shall not include subject matter that was conceived of, in existence, or owned/controlled by RECIPIENT prior to receipt of funds from the INSTITUTE under the Contract, [***], or any other subject matter arising from activities conducted independently of the Project or acquired independently of the Project, such as but not limited to: (a) proprietary and confidential information, including but not limited to data, trade secrets, materials and know-how; (b) databases, compilations and collections of data; (c) tools, methods and processes; and (d) works of authorship, excluding all scholarly works, but including, without limitation, computer programs, source code and executable code, whether embodied in software, firmware or otherwise, documentation, files, records, data and mask works; and all instantiations of the foregoing in any form and embodied in any form, including but not limited to therapeutics, drugs, drug delivery systems, drug formulations, devices, diagnostics, biomarkers, reagents, methodologies and research tools. (14) Intellectual Property Rights or IPR means any and all of the following and all rights in, arising out of, or associated therewith: (a) all United States and foreign patents and utility models and applications therefor, and all reissues, re-examinations, divisionals, renewals, substitutions, extensions, provisionals, continuations and continuations-in part thereof, and equivalent or similar rights anywhere in the world in Inventions and other discoveries; (b) all trade secrets and other rights in data, methods, results, discoveries, technology, know-how, compositions, materials and information; (c) all copyrights, copyright registrations and applications therefor, and all other rights corresponding thereto throughout the world; (d) all mask works, mask work registrations and applications therefor, and any equivalent or similar rights in semiconductor masks, layouts, architectures or topology; and (e) any similar, corresponding or equivalent rights to any of the foregoing anywhere in the world. (15) Invention means any idea, composition of matter, method, device, process or discovery that is conceived and/or reduced to practice, whether patentable or not. (16) License Agreement means an agreement by which an owner of a Project Result grants any right to Exploit such Project Result to a Third Party in exchange for consideration. (17) Licensing Activities means the efforts of RECIPIENT or its Collaborator to negotiate, execute or enforce a License Agreement. (18) Major Market Country means one or more of the following: [***]. (19) Necessary Additional IPR means any Intellectual Property Rights (a) solely owned by RECIPIENT, and (b) identified by the Institute and agreed to in writing by RECIPIENT, [***], that are not Project Results but are necessary to Exploit the Project Results for the specific purposes set forth in the applicable Section of this Attachment D. [***]. (20) Project Results means any and all Institute-Funded Technology and Institute-Funded IPR. (21) Revenue means the gross consideration, whether cash (for example, but not by way of limitation, any milestone fees, license fees, sublicense fees, or assignment fees) or non-cash (for example, but not by way of limitation, securities, direct equity interest, indirect equity interest, trade or barter considerations, and the like), received from Sales to a Third Party by or on behalf of the RECIPIENT and its licensees (including RECIPIENT's affiliates and sublicensees of RECIPIENT's licensee), net of: (a) trade or quantity discounts or rebates, credits, allowances or refunds given for rejected or returned Commercial Products or Commercial Services, (b) any sales, value-added or other tax or governmental charge levied on the sale, transportation or delivery of a Commercial Product or Commercial Service (but excluding any income tax owed by the RECIPIENT), and (c) any separately stated charges for freight, postage, shipping and insurance. The foregoing notwithstanding, any consideration: (i) received and used by RECIPIENT or its licensees for the purpose of research or development of Commercial Products and Commercial Services, or (ii) received from Sales made solely in the performance of clinical trials designed to obtain regulatory approval for a Commercial Product or Commercial Service, or (iii) received by RECIPIENT or its licensees from Sales made for compassionate use where no profit was obtained by RECIPIENT or its licensees shall not be included in this term. (22) RECIPIENT Background IPR means all RECIPIENT IPR conceived of, in existence, or owned, licensed or otherwise controlled by RECIPIENT prior to receipt of funds from

the INSTITUTE under the Contract. For the sake of clarity, "RECIPIENT Background IPR" does not include any CPRIT Project No. CC121020 Institute-Funded IPR. (23) RECIPIENT Proprietary Technology means RECIPIENT's proprietary information, technologies, materials, molecules, compositions and know-how relating to its platform technology and Shiga IA-based engineered toxin bodies (ETBs), including its proprietary ETB directed to the CD38 molecular target, "[***]" as described in Exhibit A to the Contract, and wherein [***]. (24) Revenue Term means the period commencing on the date of the First Commercial Sale of a Commercial Product or Commercial Service and ending, on a country-by-country basis, when there is not, or there no longer exists, any Exclusivity for the Commercial Product or Commercial Service in such country. If there is no Exclusivity for a Commercial Product or Commercial Service in any Major Market Country, the Revenue Term shall mean the period commencing on the date of the First Commercial Sale of such Commercial Product or Commercial Service and [***]. (25) Sale or Sales means any sale, license, lease, transfer, conveyance or other Exploitation or disposition of a Commercial Product or Commercial Service for which consideration from a first Third Party is received. For clarity, transfer or assignment of a Commercial Product or Commercial Service in connection with a merger, consolidation, transfer or sale of all, or substantially all, of RECIPIENT's business or assets, or change of control or similar transaction involving the RECIPIENT will not constitute a Sale. (26) Third Party means a party other than (a) the RECIPIENT, (b) any affiliate or licensee of the RECIPIENT, either directly or through any sublicenses, or (c) an entity that enjoys any special course of dealing with any of (a) or (b) above. Other terms may be defined elsewhere in this Attachment or in the Contract.

Description: Amendments to add two definitions to the Base Contract, to reflect a potential timeline change in Aim 1 in Attachment A, and to make several changes to Attachment D.

RECIPIENT	**INSTITUTE**
Molecular Templates, Inc.	Cancer Prevention & Research Institute of Texas
ASO Name: Kim, Jason	CEO Name: Roberts, Wayne
Submitted Date: 18 Sep 2018	Approved Date: 18 Sep 2018

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Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Eric E. Poma, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Molecular Templates, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer (s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 13, 2018

/s/ Eric E. Poma, Ph.D.
Eric E. Poma, Ph.D.
Chief Executive Officer

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Adam Cutler, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Molecular Templates, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer (s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 13, 2018

/s/ Adam Cutler
Adam Cutler
Chief Financial Officer

Exhibit 32.1

MOLECULAR TEMPLATES, INC.

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Molecular Templates, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Eric E. Poma, Ph.D., Chief Executive Officer, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

Date: November 13, 2018

/s/ Eric E. Poma, Ph.D.
Eric E. Poma, Ph.D.
Chief Executive Officer

Exhibit 32.2

MOLECULAR TEMPLATES, INC.

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Molecular Templates, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Adam Cutler, Chief Financial Officer, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

Date: November 13, 2018

/s/ Adam Cutler
Adam Cutler
Chief Financial Officer