
**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, 2020

OR

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

For the transition period from to Commission file number 001-38935

ATRECA, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

27-3723255
(I.R.S. Employer
Identification No.)

450 East Jamie Court
South San Francisco, CA 94080
(Address of principal executive offices)
(Zip Code)

(650)-595-2595
(Registrant's telephone number, including area code)

Unchanged
(Former name, former address and former fiscal year, if changed since last report)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Class A Common Stock	BCEL	The Nasdaq Global Select Market

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

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

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

As of November 12, 2020, the registrant had 29,991,270 shares of Class A common stock, \$0.0001 par value per share and 6,715,441 shares of Class B common stock, \$0.0001 par value per share, outstanding.

TABLE OF CONTENTS

	<u>Page</u>
<u>PART I. FINANCIAL INFORMATION</u>	
<u>Item 1. Condensed Consolidated Financial Statements (Unaudited)</u>	
<u>Condensed Consolidated Balance Sheets</u>	3
<u>Condensed Consolidated Statements of Operations</u>	4
<u>Condensed Consolidated Statements of Loss and Comprehensive Loss</u>	5
<u>Condensed Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit)</u>	6
<u>Condensed Consolidated Statements of Cash Flows</u>	8
<u>Notes to Unaudited Condensed Consolidated Financial Statements</u>	10
<u>Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	23
<u>Item 3. Quantitative and Qualitative Disclosures About Market Risk</u>	33
<u>Item 4. Controls and Procedures</u>	34
<u>PART II. OTHER INFORMATION</u>	36
<u>Item 1. Legal Proceedings</u>	36
<u>Item 1A. Risk Factors</u>	36
<u>Item 2. Unregistered Sales of Equity Securities and Use of Proceeds</u>	83
<u>Item 3. Defaults Upon Senior Securities</u>	83
<u>Item 4. Mine Safety Disclosures</u>	83
<u>Item 5. Other Information</u>	84
<u>Item 6. Exhibits</u>	84

PART I --- FINANCIAL INFORMATION

Item 1. Condensed Consolidated Financial Statements (Unaudited)

Atreca, Inc.
Condensed Consolidated Balance Sheets
(in thousands, except share and per share data)

	September 30, 2020	December 31, 2019
	(Unaudited)	(Note 2)
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 133,072	\$ 157,954
Investments	126,192	14,663
Prepaid expenses and other current assets	4,898	3,502
Total current assets	264,162	176,119
Property and equipment, net	7,783	5,771
Long-term investments	205	10,799
Deposits and other	3,043	3,026
Total assets	<u>\$ 275,193</u>	<u>\$ 195,715</u>
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current Liabilities		
Accounts payable	\$ 2,524	\$ 2,133
Accrued expenses	5,309	5,395
Other current liabilities	1,442	419
Total current liabilities	9,275	7,947
Capital lease obligations, net of current portion	17	53
Deferred rent	4,621	763
Total liabilities	<u>13,913</u>	<u>8,763</u>
Commitment and Contingencies (Note 8)		
Stockholders' equity		
Class A common stock, \$0.0001 par value, 650,000,000 shares authorized as of both September 30, 2020 and December 31, 2019; 29,977,408 and 22,035,976 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively	3	2
Class B common stock, \$0.0001 par value, 50,000,000 shares authorized as of both September 30, 2020 and December 31, 2019; 6,715,441 and 5,934,191 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively	1	1
Additional paid-in capital	488,593	351,039
Accumulated other comprehensive income	117	16
Accumulated deficit	(227,434)	(164,106)
Total stockholders' equity	<u>261,280</u>	<u>186,952</u>
Total liabilities and stockholders' equity	<u>\$ 275,193</u>	<u>\$ 195,715</u>

Atreca, Inc.
Condensed Consolidated Statements of Operations
(in thousands, except share and per share data)
(unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Expenses				
Research and development	\$ 16,808	\$ 12,812	\$ 45,198	\$ 40,447
General and administrative	6,614	4,864	20,195	10,919
Total expenses	23,422	17,676	65,393	51,366
Interest and other income (expense)				
Other income	353	619	987	1,805
Interest income	142	1,189	1,082	2,328
Interest expense	(1)	(1)	(3)	(5)
Preferred stock warrant liability revaluation	—	—	—	(123)
Foreign exchange loss	—	(1)	—	(1)
Loss on disposal of property and equipment	—	—	—	(7)
Loss before income tax expense	(22,928)	(15,870)	(63,327)	(47,369)
Income tax expense	(1)	(1)	(1)	(2)
Net loss	\$ (22,929)	\$ (15,871)	\$ (63,328)	\$ (47,371)
Net loss per share, basic and diluted	\$ (0.66)	\$ (0.57)	\$ (2.09)	\$ (4.03)
Weighted-average shares used in computing net loss per share, basic and diluted	34,723,888	27,949,682	30,313,047	11,747,825

Atreca, Inc.
Condensed Consolidated Statements of Loss and Comprehensive Loss
(in thousands)
(unaudited)

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	<u>2020</u>	<u>2019</u>	<u>2020</u>	<u>2019</u>
Net loss	\$ (22,929)	\$ (15,871)	\$ (63,328)	\$ (47,371)
Other comprehensive income (loss):				
Unrealized gain (loss) on fair value of investments	(99)	(41)	101	48
Unrealized loss on currency translation	—	(2)	—	(1)
Comprehensive loss	<u>\$ (23,028)</u>	<u>\$ (15,914)</u>	<u>\$ (63,227)</u>	<u>\$ (47,324)</u>

Atreca, Inc.
Condensed Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit)
(in thousands, except share data)
(unaudited)

<i>Three Months Ended</i> <i>September 30, 2019</i>	Convertible		Common Stock		Additional	Accumulated	Total	
	Preferred Stock		Shares	Amount	Paid-In	Other	Accumulated	Stockholders'
	Shares	Amount			Capital	Comprehensive	Deficit	Equity
Balances at June 30, 2019	—	\$ —	27,947,201	\$ 3	\$346,915	\$ 86	\$ (128,122)	\$ 218,882
Issuance of common stock upon exercise of options	—	—	3,610	—	10	—	—	10
Vesting of early exercised stock options	—	—	—	—	6	—	—	6
Issuance of common stock under the Employee Stock Purchase Plan	—	—	9,232	—	133	—	—	133
Stock-based compensation	—	—	—	—	1,878	—	—	1,878
Unrealized loss on fair value of investments	—	—	—	—	—	(41)	—	(41)
Unrealized currency exchange loss	—	—	—	—	—	(2)	—	(2)
Net loss	—	—	—	—	—	—	(15,871)	(15,871)
Balances at September 30, 2019	—	\$ —	27,960,043	\$ 3	\$348,942	\$ 43	\$ (143,993)	\$ 204,995

<i>Three Months Ended</i> <i>September 30, 2020</i>	Convertible		Common Stock		Additional	Accumulated	Total	
	Preferred Stock		Shares	Amount	Paid-In	Other	Accumulated	Stockholders'
	Shares	Amount			Capital	Comprehensive	Deficit	Equity
Balances at June 30, 2020	—	\$ —	28,192,733	\$ 3	\$358,401	\$ 216	\$ (204,505)	\$ 154,115
Issuance of common stock upon public offering, net	—	—	8,423,375	1	126,054	—	—	126,055
Issuance of common stock upon exercise of options	—	—	37,133	—	172	—	—	172
Issuance of common stock under the Employee Stock Purchase Plan	—	—	39,608	—	479	—	—	479
Stock-based compensation	—	—	—	—	3,487	—	—	3,487
Unrealized loss on fair value of investments	—	—	—	—	—	(99)	—	(99)
Net loss	—	—	—	—	—	—	(22,929)	(22,929)
Balances at September 30, 2020	—	\$ —	36,692,849	\$ 4	\$488,593	\$ 117	\$ (227,434)	\$ 261,280

Atreca, Inc.
Condensed Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit) (continued)
(in thousands, except share data)
(unaudited)

<i>Nine Months Ended</i> <i>September 30, 2019</i>	Convertible		Common Stock		Additional	Accumulated	Accumulated	Total
	Preferred Stock		Shares		Paid-In	Other		
	Shares	Amount	Shares	Amount	Capital	Income (Loss)		
Balances at December 31, 2018	17,248,259	\$ 209,668	2,119,872	\$ —	\$ 3,593	\$ (4)	\$ (96,622)	\$ (93,033)
Conversion of convertible preferred stock	(17,248,259)	(209,668)	17,248,259	2	209,666	—	—	209,668
Issuance of common stock upon initial public offering, net	—	—	8,452,500	1	130,785	—	—	130,786
Exercise of warrants	—	—	62,936	—	—	—	—	—
Issuance of common stock upon exercise of options	—	—	67,244	—	241	—	—	241
Vesting of early exercised stock options	—	—	—	—	8	—	—	8
Reclassification of redeemable convertible preferred stock warrant liability to additional paid-in capital	—	—	—	—	503	—	—	503
Issuance of common stock under the Employee Stock Purchase Plan	—	—	9,232	—	133	—	—	133
Stock-based compensation	—	—	—	—	4,013	—	—	4,013
Unrealized gain on fair value of investments	—	—	—	—	—	48	—	48
Unrealized currency exchange loss	—	—	—	—	—	(1)	—	(1)
Net loss	—	—	—	—	—	—	(47,371)	(47,371)
Balances at September 30, 2019	—	\$ —	27,960,043	\$ 3	\$348,942	\$ 43	\$ (143,993)	\$ 204,995

<i>Nine Months Ended</i> <i>September 30, 2020</i>	Convertible		Common Stock		Additional	Accumulated	Accumulated	Total
	Preferred Stock		Shares		Paid-In	Other		
	Shares	Amount	Shares	Amount	Capital	Income		
Balances at December 31, 2019	—	\$ —	27,970,167	\$ 3	\$351,039	\$ 16	\$ (164,106)	\$ 186,952
Issuance of common stock upon public offering, net	—	—	8,423,375	1	126,054	—	—	126,055
Issuance of common stock upon exercise of options	—	—	223,143	—	1,131	—	—	1,131
Vesting of early exercised stock options	—	—	—	—	4	—	—	4
Issuance of common stock under the Employee Stock Purchase Plan	—	—	76,164	—	1,012	—	—	1,012
Stock-based compensation	—	—	—	—	9,353	—	—	9,353
Unrealized gain on fair value of investments	—	—	—	—	—	101	—	101
Net loss	—	—	—	—	—	—	(63,328)	(63,328)
Balances at September 30, 2020	—	\$ —	36,692,849	\$ 4	\$488,593	\$ 117	\$ (227,434)	\$ 261,280

Atreca, Inc.
Condensed Consolidated Statements of Cash Flows
(in thousands)
(unaudited)

	Nine Months Ended September 30,	
	2020	2019
Cash Flows from Operating Activities		
Net loss	\$ (63,328)	\$ (47,371)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,805	1,218
Loss on disposal of property and equipment	—	7
Stock-based compensation	9,353	4,013
Preferred stock warrant liability revaluation	—	123
Accretion of discount on investments	(63)	(686)
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(1,170)	(2,714)
Accounts payable	38	1,450
Accrued expenses	(93)	1,511
Other current liabilities	932	(11)
Deferred rent	3,952	141
Net cash used in operating activities	<u>(48,574)</u>	<u>(42,319)</u>
Cash Flows from Investing Activities		
Purchase of property and equipment	(3,726)	(1,822)
Purchase of investments	(163,881)	(84,160)
Proceeds from maturities of investments	63,110	50,000
Change in deposits	127	92
Net cash used in investing activities	<u>(104,370)</u>	<u>(35,890)</u>
Cash Flows from Financing Activities		
Proceeds from the issuance of common stock under the Employee Stock Purchase Plan	1,012	133
Proceeds from exercise of stock options	1,131	249
Proceeds from public offering, net	126,688	133,633
Principal payments on capital lease obligations	(35)	(36)
Payments of offering costs	(364)	(2,848)
Net cash provided by financing activities	<u>128,432</u>	<u>131,131</u>
Net change in cash, cash equivalents and restricted cash	<u>(24,512)</u>	<u>52,922</u>
Cash, cash equivalents and restricted cash, beginning of period	159,236	114,504
Cash, cash equivalents and restricted cash, end of period	<u>\$ 134,724</u>	<u>\$ 167,426</u>

Atreca, Inc.
Condensed Consolidated Statements of Cash Flows (continued)
(in thousands)
(unaudited)

	Nine Months Ended September 30,	
	2020	2019
Supplemental Disclosure of Cash Flow Information		
Cash paid for interest	\$ 3	\$ 5
Cash paid for income taxes	\$ 1	\$ 1
Supplemental Schedule of Non-Cash Investing and Financing Activities		
Costs related to public offering included in accounts payable and accrued liabilities	\$ 269	\$ —
Conversion of redeemable convertible preferred stock to common stock	\$ —	\$ 209,669
Reclassification of redeemable convertible preferred stock warrant liability to additional paid-in capital	\$ —	\$ 503
Vesting of early exercised common stock options	\$ 4	\$ 8
Purchases of property and equipment included in accounts payable and accrued liabilities	\$ 91	\$ —

Notes to Unaudited Interim Condensed Consolidated Financial Statements

1. Business

Nature of Business

Atreca, Inc. (the “Company”) was incorporated in the State of Delaware on June 11, 2010 (“inception date”), and is located in South San Francisco, California. In April 2016, the Company formed a wholly owned subsidiary, Atreca Pte. Ltd., in Singapore. Atreca Pte. Ltd., was dissolved in the first quarter of fiscal year 2020. The Company is a biopharmaceutical company utilizing its differentiated platform to discover and develop novel antibody-based immunotherapeutics to treat a range of solid tumor types. The Company’s lead product candidate, ATRC-101, is a monoclonal antibody in clinical development with a novel mechanism of action and target derived from an antibody identified using its discovery platform. The Company operates in a single segment. Since inception, the Company has been primarily engaged in research and development, raising capital, building its management team and building its intellectual property portfolio.

2020 Common Stock Offering

In July 2020, the Company closed its follow-on stock offering of 7,642,125 shares of its Class A common stock and 781,250 shares of its Class B common stock at an offering price of \$16.00 per share, including 610,875 shares pursuant to the underwriters’ option to purchase additional shares of the Company’s Class A common stock. The Company received net proceeds of \$126.1 million, after deducting underwriting discounts and commissions of \$8.1 million and offering expenses of \$0.6 million.

2. Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) and include the accounts of the Company and its wholly owned subsidiary. All intercompany transactions and accounts have been eliminated. Certain information and note disclosures normally included in the financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to the applicable rules and regulations of the Securities and Exchange Commission (“SEC”). Therefore, these unaudited condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and related footnotes included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2019 (the “2019 Form 10-K”).

Prior period reclassification

An immaterial reclassification of prior period amounts has been made to conform to the current period presentation.

Principles of Consolidation

The condensed consolidated financial statements include accounts of the Company and its wholly owned subsidiary. All significant intercompany accounts and transactions are eliminated upon consolidation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities, and reported amounts of income and expenses in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates. Key

estimates in the consolidated financial statements include estimated useful lives of property and equipment, impairment of long-lived assets, accrued expenses, valuation of deferred income tax assets, fair value of warrants issued to purchasers of shares of preferred stock and common stock and fair value of options granted under the Company's stock option plan.

Unaudited Interim Condensed Consolidated Financial Statements

The accompanying condensed consolidated financial statements are unaudited. The unaudited interim condensed financial statements have been prepared on the same basis as the annual consolidated financial statements and reflect, in the opinion of management, all adjustments of a normal and recurring nature that are necessary for the fair statement of the Company's financial position as of September 30, 2020 and its results of operations and cash flows for the three and nine months ended September 30, 2020 and 2019. The financial data and the other financial information contained in these notes to the condensed consolidated financial statements related to the three-month and nine-month periods are also unaudited. The condensed results of operations for the three months and nine months ended September 30, 2020 are not necessarily indicative of the results to be expected for the year ending December 31, 2020 or for any other future annual or interim period. The condensed consolidated balance sheet as of December 31, 2019 included herein was derived from the audited consolidated financial statements as of that date.

Collaborations

Historically, we have entered into a number of discovery collaborations as we developed our discovery platform. These collaborations have generally focused on identifying novel antibodies in areas of significant unmet medical need.

In July 2020, the Company entered into a Collaboration and License Agreement with Xencor, Inc. ("Xencor Agreement"), to research, develop and commercialize novel CD3 bispecific antibodies as potential therapeutics in oncology. Under the Xencor Agreement, the Company and Xencor, Inc. will engage in a three-year research program in which the Company will provide antibodies against novel tumor targets through its discovery platform from which Xencor, Inc. will engineer XmAb bispecific antibodies that also bind to the CD3 receptor on T cells. Up to two joint programs are eligible to be mutually selected for further development and commercialization, with each partner sharing 50% of costs and profits. Each company has the option to lead development, regulatory and commercialization activities for one of the joint programs. In addition, the Xencor Agreement allows each partner the option to pursue up to two programs independently, with a mid-to high-single digit percent royalty payable on net sales to the other partner.

For the cost-sharing related to the research program, the Company will follow the presentation and disclosure guidance of Accounting Standard Codification ("ASC") 808 *Collaboration Agreements*. As of September 30, 2020, the Company had \$110,000 of receivable under the research cost-sharing provision recorded in prepaid and other current assets on the accompanying balance sheet.

The Company evaluated the Xencor Agreement under the provisions of Accounting Standard Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers* and all related amendments (collectively, "ASC 606"). The Company concluded that Xencor, Inc. is not a customer as there are no distinct units of account that are reflective of a vendor-customer relationship or exchange of consideration for the research activities.

Other Income

Other income is comprised of amounts earned from services performed under service agreements. Beginning January 1, 2018, the Company follows the provisions of Accounting Standards Update 2014-09 ASC Topic 606, *Revenue from Contracts with Customers* ("Topic 606"). The guidance provides a unified model to determine how income is recognized.

In determining the appropriate amount of other income to be recognized as it fulfills its obligations under the agreements, the Company performs the following steps: (i) identifies the promised goods or services in the contract; (ii) determines whether the promised goods or services are performance obligations including whether they are distinct

in the context of the contract; (iii) measures the transaction price, including the constraint on variable consideration; (iv) allocates the transaction price to the performance obligations based on estimated selling prices; and (v) recognizes other income when (or as) the Company satisfies each performance obligation.

Upon adoption of Topic 606, there was no change to the units of accounting previously identified with respect to existing service agreements under legacy Generally Accepted Accounting Principles (“GAAP”), which are now considered performance obligations under Topic 606, and there was no change to the revenue recognition pattern for the performance obligations. Accordingly, the adoption of the new standard resulted in no cumulative effect change to the Company’s opening accumulated deficit balance.

The Company generally allocates the transaction price to distinct performance obligations at their stand-alone selling prices, determined by their estimated costs plus some margin. Performance obligations are generally delivered over time and recognized based upon observable inputs as the related research services are performed, which are recorded as research and development expenses. Amounts due under service agreements are generally billed monthly as services are delivered and do not generally result in contract liabilities or assets. Receivables under service agreements of \$1,000 and \$237,000 are included in prepaid expenses and other current assets as of September 30, 2020 and December 31, 2019, respectively. In February 2020, the Company entered into an agreement with an external partner for a research project to identify the antigenic targets of select antibodies discovered by the Company with potential utility in oncology. The nonrefundable upfront payment from this agreement was classified as a contract liability and will be recognized as other income over the expected service period of 18 months. Contract liabilities of \$1.2 million related to the agreement are included in other current liabilities, as of September 30, 2020. There were no contract liabilities included in other current liabilities as of December 31, 2019.

Cash, Cash Equivalents and Restricted Cash

Cash and cash equivalents include all cash balances and highly liquid investments purchased with an original maturity of three months or less.

The Company maintained restricted cash of \$1.7 million and \$1.3 million as of September 30, 2020 and December 31, 2019, respectively. This amount is included in deposits and other in the accompanying condensed consolidated balance sheets and is comprised solely of letters of credit required pursuant to leases for Company facilities.

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

	September 30, 2020	December 31, 2019
Cash and cash equivalents	\$ 133,072	\$ 157,954
Restricted cash	1,652	1,282
Cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	<u>\$ 134,724</u>	<u>\$ 159,236</u>

Investments

The Company considers securities purchased with original maturities greater than three months to be investments. The Company’s policy is to protect the value of its investment portfolio and minimize principal risk by earning returns based on current interest rates. The Company’s intent is to convert all investments into cash to be used for operations and has classified them as available for sale. For purposes of determining realized gains and losses, the cost of securities sold is based on specific identification. Interest and dividends on securities classified as available-for-sale are included in interest income.

Convertible Preferred Stock Warrants

The Company issued convertible preferred stock warrants, which were exercisable into Series A preferred stock with liquidation preference. The conversion feature was evaluated under ASC Topic 480, *Distinguishing liabilities from equity* and the warrants were determined to be debt instruments and classified prior to its initial public offering (the "IPO") as liabilities on the consolidated balance sheets. The Company recorded these warrant liabilities at fair value and adjusted the carrying value to their estimated fair value at each reporting date with the increases or decreases in the fair value recorded as a gain (loss) on revaluation of the warrant liability in the consolidated statements of operations. Upon the IPO, the 49,997 preferred stock warrants were converted to common stock warrants of Class A shares and the warrant liability of \$0.5 million was reclassified to additional paid-in capital as a result of the conversion. The warrants were not subject to further remeasurement for fair value.

Risks and Uncertainties

The Company is subject to a number of risks associated with companies at a similar stage, including dependence on key individuals, competition from similar services and larger companies, volatility of the industry, ability to obtain regulatory clearance, ability to obtain adequate financing to support growth, the ability to attract and retain additional qualified personnel to manage the anticipated growth of the Company and general economic conditions.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentration of credit risk consist of cash and cash equivalents, investments and other receivables. Cash and cash equivalents are held at two financial institutions and were in excess of the Federal Deposit Insurance Corporation insurable limit at September 30, 2020 and December 31, 2019. Additionally, cash and cash equivalents and investments are maintained at brokerage firms for which amounts are insured by the Securities Investor Protection Corporation subject to legal limits. The Company has not experienced any losses on its deposits to date.

The Company does not require collateral or other security for other receivables; however, credit risk is mitigated by the Company's ongoing evaluations of its debtors' credit worthiness.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development costs consist primarily of salaries and benefits, consultant fees, stock-based compensation, certain facility costs, legal costs and other costs associated with preclinical and clinical development.

A substantial portion of the Company's ongoing research and development activities are conducted by third-party service providers in connection with preclinical and clinical development activities and contract manufacturing organizations in connection with the production of materials for clinical trials. At the end of the reporting period, the Company compares payments made to third-party service providers to the estimated progress toward completion of the research or development objectives. Such estimates are subject to change as additional information becomes available. Depending on the timing of payments to the service providers and the progress that the Company estimates has been made as a result of the service provided, the Company may record net prepaid or accrued expense relating to these costs.

Stock-Based Compensation

The Company generally grants stock options to its employees for a fixed number of shares with an exercise price equal to the fair value of the underlying shares at the date of grant. The Company accounts for stock option grants using the fair value method. The fair value of options is calculated using the Black-Scholes option pricing model. Stock-based compensation is recognized as the underlying options vest using the straight-line attribution approach, and forfeitures are recorded as they occur.

Emerging Growth Company Status

The Company is an “emerging growth company,” (“EGC”) as defined in the Jumpstart Our Business Startups Act, (“JOBS Act”), and may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not EGCs. The Company may take advantage of these exemptions until it is no longer an EGC under Section 107 of the JOBS Act, which provides that an EGC can take advantage of the extended transition period afforded by the JOBS Act for the implementation of new or revised accounting standards. The Company has elected to use the extended transition period for complying with new or revised accounting standards, and as a result of this election, the Company’s condensed consolidated financial statements may not be comparable to companies that comply with public company Financial Accounting Standards Board (“FASB”) standards’ effective dates. The Company may take advantage of these exemptions up until the last day of the fiscal year following the fifth anniversary of the IPO or such earlier time that the Company is no longer an EGC.

Recent Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02 and subsequent amendments to the initial guidance under ASU 2017-13, ASU 2018-10, ASU 2018-11, and ASU 2019-01 (collectively, “*Topic 842*”), which modifies the accounting by lessees for all leases with a term greater than 12 months. This standard will require lessees to recognize on the balance sheet the assets and liabilities for the rights and obligations created by those leases. *Topic 842* is effective for the Company as of January 1, 2022. Early adoption is permitted. The Company’s most significant lease is its operating lease for its corporate headquarters, and, while the Company has not yet estimated the amounts by which its financial statements will be affected by the adoption of this guidance, it expects that the overall recognition of expense will be similar to current guidance, but that there will be a significant change in the balance sheet due to the recognition of right of use assets and the corresponding lease liabilities.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses* (“*Topic 326*”): Measurement of Credit Losses on Financial Instruments and subsequent amendments to the initial guidance under ASU 2018-19, ASU 2019-04, ASU 2019-05, and ASU 2020-03 which amends the current approach to estimate credit losses on certain financial assets, including trade and other receivables. The amendment replaces the existing incurred loss impairment model with an expected loss methodology, which will result in more timely recognition of credit losses. For available-for-sale debt securities, credit losses should be recorded through an allowance for credit losses. *Topic 326* is effective for the Company as of January 1, 2023. Early adoption is permitted. The Company is currently evaluating the impact the adoption of this standard will have on its consolidated financial statements and related disclosures.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes - Simplifying the Accounting for Income Taxes* (“*Topic 740*”): which simplifies the accounting for income taxes, eliminates certain exceptions to the general principles in *Topic 740* and clarifies and amends existing guidance to improve consistent application. ASU 2019-12 is effective for the Company as of January 1, 2021, including interim periods within those fiscal years. The Company does not expect the adoption of this guidance will have a material impact on our consolidated financial statements.

3. Fair Value of Financial Instruments

The Company's financial assets and liabilities subject to fair value measurements on a recurring basis and the level of inputs used for such measurements were as follows:

	September 30, 2020			
	Level 1	Level 2	Level 3	Total
Assets				
Money market funds	\$ 43,608	\$ —	\$ —	\$ 43,608
U.S. Agency Bonds	—	10,719	—	10,719
Certificates of deposit	1,682	—	—	1,682
Corporate debt securities	—	17,606	—	17,606
U.S. Treasury securities	106,388	—	—	106,388
	<u>\$ 151,678</u>	<u>\$ 28,325</u>	<u>\$ —</u>	<u>\$ 180,003</u>

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Assets				
Money market funds	\$ 152,770	\$ —	\$ —	\$ 152,770
Certificates of deposit	1,950	—	—	1,950
Corporate debt securities	—	3,459	—	3,459
U.S. Treasury securities	20,052	—	—	20,052
Total	<u>\$ 174,772</u>	<u>\$ 3,459</u>	<u>\$ —</u>	<u>\$ 178,231</u>

The Company utilized the market approach and Level 1 valuation inputs to value its money market funds and U.S. government treasury securities because published fair market values were readily available. The Company measured the fair value of corporate debt securities and U.S. agency bonds using Level 2 valuation inputs, which are based on quoted prices and market observable data of similar instruments. As of September 30, 2020 and 2019, gross unrealized gains and unrealized losses for cash equivalents and short-term investments were not material, and the contractual maturity of all marketable securities was less than two years.

4. Cash, Cash Equivalents and Investments

The fair value and the amortized cost of cash, cash equivalents and available-for-sale investments by major security type consist of the following (in thousands):

	As of September 30, 2020			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash and cash equivalents and investments				
Cash, cash equivalents and money market funds	\$ 123,074	\$ —	\$ —	\$ 123,074
U.S. Treasury securities	106,303	85	—	106,388
Corporate debt securities	17,584	22	—	17,606
U.S. Agency bonds	10,719	—	—	10,719
Certificates of deposit	1,672	10	—	1,682
Total	259,352	117	—	259,469
Less amounts classified as cash and cash equivalents	(133,072)	—	—	(133,072)
Total available-for-sale investments	\$ 126,280	\$ 117	\$ —	\$ 126,397

	As of December 31, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash and cash equivalents and investments				
Cash, cash equivalents and money market funds	\$ 157,954	\$ —	\$ —	\$ 157,954
U.S. Treasury securities	20,037	16	—	20,053
Corporate debt securities	3,459	—	—	3,459
Certificates of deposit	1,950	—	—	1,950
Total	183,400	16	—	183,416
Less amounts classified as cash and cash equivalents	(157,954)	—	—	(157,954)
Total available-for-sale investments	\$ 25,446	\$ 16	\$ —	\$ 25,462

5. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consist of the following (in thousands):

	September 30, 2020	December 31, 2019
Prepaid insurance	\$ 2,175	\$ 1,265
Vendor prepayments and deposits	970	963
Prepaid rent	1,397	879
Non-trade receivables	120	242
Interest receivables and other current assets	236	153
Total prepaid expenses and other current assets	\$ 4,898	\$ 3,502

[Table of Contents](#)

6. Property and Equipment, net

Property and equipment consists of the following (in thousands):

	September 30, 2020	December 31, 2019
Laboratory equipment	\$ 11,255	\$ 9,355
Furniture and fixtures	242	225
Computer hardware and software	854	785
Leasehold improvements	667	629
Construction in process	1,888	136
	<u>14,906</u>	<u>11,130</u>
Less accumulated depreciation and amortization	(7,123)	(5,359)
Total property and equipment, net	<u>\$ 7,783</u>	<u>\$ 5,771</u>

Depreciation expense was \$0.6 million and \$0.4 million for the three months ended September 30, 2020 and 2019, respectively, and \$1.8 million and \$1.2 million for the nine months ended September 30, 2020 and 2019, respectively.

The net book value of property and equipment under capital leases was \$60,000 and \$94,000 at September 30, 2020 and December 31, 2019, respectively.

7. Accrued Expenses

Accrued expenses consist of the following (in thousands):

	September 30, 2020	December 31, 2019
Compensation and related benefits	\$ 3,692	\$ 4,435
Professional fees	262	214
Contract research fees	925	563
Other	430	183
Total accrued expenses	<u>\$ 5,309</u>	<u>\$ 5,395</u>

8. Commitments and Contingencies

Leases

The Company leases its office facilities under non-cancellable operating lease agreements that expire at various dates through April 2033. Under the terms of the leases, the Company is responsible for certain insurance, property taxes and maintenance expenses. The office facilities lease agreements contain scheduled increases over the lease term. The related rent expense is calculated on a straight-line basis with the difference recorded as deferred rent. Rent expense was \$2.9 million and \$1.1 million for the three months ended September 30, 2020 and 2019, respectively, and \$6.7 million and \$2.4 million for the nine months ended September 30, 2020 and 2019, respectively.

The Company leases certain property and equipment under capital leases. In 2017, the Company financed purchases of \$226,000 under a capital lease agreement. Outstanding amounts under the capital lease agreements are generally secured by liens on the related property and equipment.

[Table of Contents](#)

Future minimum lease payments under non-cancelable operating and capital lease agreements consisted of the following at September 30, 2020 (in thousands):

	Capital Leases	Operating Leases
Years ending December 31:		
2020 (remaining 3 months)	\$ 13	\$ 1,428
2021	51	6,697
2022	4	7,336
2023	—	7,037
2024	—	7,248
Thereafter	—	69,091
Total minimum lease payments	68	\$ 98,837
Less: amount representing interest	(3)	
Present value of capital lease obligation	65	
Less: current portion	(48)	
Non-current portion	\$ 17	

Litigation

The Company is not aware of any asserted or unasserted claims against it where it believes that an unfavorable resolution would have an adverse material impact on the operations or financial position of the Company.

9. Capital Stock

Class A and Class B Common Stock

On June 2, 2019 the board of directors of the Company authorized the issuance of 650,000,000 shares of Class A common stock, \$0.0001 par value per share, 50,000,000 shares of Class B common stock, \$0.0001 par value per share and 300,000,000 shares of preferred stock, \$0.0001 par value per share, upon the filing of the Company's Amended and Restated Certificate of Incorporation in connection with the reverse stock split. Each holder of Class A common stock will be entitled to one vote and each holder of Class B common stock is not entitled to vote except as may be required by law and shall not be entitled to vote on the election of directors at any time.

Common Stock Warrant

In connection with the issuance of the Company's Series A preferred stock in August 2015, the Company issued a warrant to purchase an aggregate of 62,936 shares of common stock at \$0.0001 per share. The warrant was immediately exercisable and expires, if not exercised, in August 2025. At issuance, the fair value of the warrant was determined to be \$41,509, which was recorded as a Series A preferred stock issuance cost and additional paid-in capital.

Sales Agreement

In August 2020, the Company entered into a sales agreement ("Sales Agreement") with Cowen and Company, LLC ("Cowen"), pursuant to which the Company may, upon the terms and subject to the conditions set forth therein, issue and sell through Cowen, acting as the Company's sales agent and/or principal, shares of the Company's Class A common stock, having an aggregate offering price of up to \$100.0 million (the "ATM Shares"). The Company has no obligations to sell any ATM Shares under the Sales Agreement. The issuance and sale of the ATM Shares, if any, is subject to the continued effectiveness of the Company's shelf registration statement on Form S-3, File No. 333-239652, initially filed with the SEC on July 2, 2020 and declared effective by the SEC on July 10, 2020. The Sales Agreement provides that Cowen will be entitled to compensation for its services in an amount equal to up to 3.0% of gross proceeds for each time we issue and sell ATM Shares under the Sales Agreement. The ATM Shares will be sold based on prevailing market prices at the time of the sale, and, as a result, prices may vary. Unless otherwise terminated earlier, the

Sales Agreement continues until all shares available under the Sales Agreement have been sold. As of September 30, 2020, no ATM Shares have been sold under the Sales Agreement.

10. Equity Incentive Plans

2019 Equity Incentive Plan

The Company’s board of directors adopted and our stockholders approved our 2019 Equity Incentive Plan, (the “2019 Plan”), on June 2, 2019, and June 7, 2019, respectively. The 2019 Plan became effective on June 19, 2019, and no further grants will be made under the Company’s 2010 Equity Incentive Plan. The purpose of the 2019 Plan, through the grant of stock awards including stock options and other stock-based awards, including restricted stock units (“RSUs”), is to help the Company secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for our success and that of the Company’s affiliates, and provide a means by which the eligible recipients may benefit from increases in the value of the Company’s Class A common stock. Under the 2019 Plan, 6,141,842 shares of the Company’s Class A common stock have been reserved for issuance to employees, directors and consultants. Additionally, the number of shares of the Company’s Class A common stock reserved for issuance under the 2019 Plan will automatically increase on January 1 of each year, beginning on January 1, 2020 and continuing through and including January 1, 2029, by 4% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by the Company’s board of directors.

Stock option activity under the 2019 Plan and the Company’s 2010 Equity Incentive Plan is as follow:

	Options Outstanding			
	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in thousands)
Balances, December 31, 2019	3,742,144	\$ 9.58	8.6	\$ 22,910
Granted	1,446,250	21.33		
Exercised	(223,143)	5.07		
Cancelled	(44,394)	15.63		
Balances, September 30, 2020	<u>4,920,857</u>	\$ 13.18	8.3	\$ 16,009
Vested and expected to vest at September 30, 2020	<u>4,920,857</u>	\$ 13.18	8.3	\$ 16,009
Exercisable at September 30, 2020	<u>2,312,537</u>	\$ 9.07	7.6	\$ 13,441
Vested at September 30, 2020	<u>1,916,554</u>	\$ 9.88	7.7	\$ 9,948

The weighted-average grant date fair value of options granted to employees and non-employees in the nine months ended September 30, 2020 and 2019 was \$13.55 and \$10.42, respectively. The fair value of each option is estimated on the date of grant using the Black-Scholes option pricing model, assuming no expected dividends and the following weighted average assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Expected life (in years)	6.01	6.03	5.85	6.02
Volatility	88.5 %	80.5 %	85.6 %	80.8 %
Risk-free interest rate	0.39 %	1.77 %	1.05 %	2.19 %

Expected volatility is based on volatilities of public companies operating in the Company’s industry. The expected life of the options is estimated using the simplified method detailed in SEC Staff Accounting Bulletin No. 107. The simplified method calculates the expected term as the mid-point between the weighted-average time to vesting and the contractual maturity. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant. The Company has elected to account for forfeitures as they occur, rather than estimate expected forfeitures.

2019 Employee Stock Purchase Plan

The Company’s board of directors adopted the 2019 Employee Stock Purchase Plan, (“ESPP”), on June 2, 2019, and the Company’s stockholders approved the ESPP on June 7, 2019. The ESPP became effective on June 19, 2019. The Company’s board of directors authorized 283,333 shares of Class A common stock to be reserved for future issuance under the ESPP. The number of shares of our Class A common stock reserved for issuance will automatically increase on January 1 of each calendar year, from January 1, 2020 through January 1, 2029, by the lesser of (1) 1% of the total number of shares of our Class A common stock outstanding on December 31 of the preceding calendar year, and (2) 416,666 shares; provided, that prior to the date of any such increase, the Company’s board of directors may determine that such increase will be less than the amount set forth in clauses (1) and (2). During the three months ended September 30, 2020 and 2019, the expense related to the ESPP was \$194,000 and \$177,000, respectively. During the nine months ended September 30, 2020 and 2019, the expense related to the ESPP was \$525,000 and \$177,000, respectively. The fair value of each ESPP is estimated on the date of grant using the Black-Scholes option pricing model, assuming no expected dividends and the following range of assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Expected life (in years)	0.5 - 2.0	0.5 - 2.0	0.5 - 2.0	0.2 - 2.0
Volatility	103.4 - 114.6 %	75.1 - 93.7 %	91.4 - 114.6 %	74.6 - 101.6 %
Risk-free interest rate	0.12 - 0.14 %	1.50 - 1.89 %	0.12 - 1.11 %	1.50 - 2.15 %

The Company recognized \$3.5 million and \$1.9 million of stock-based compensation expense related to the 2019 Plan and ESPP for the three months ended September 30, 2020 and 2019, respectively. The Company recognized \$9.4 million and \$4.0 million of stock-based compensation expense related to the 2019 Plan and ESPP for the nine months ended September 30, 2020 and 2019, respectively. The compensation expense is allocated on a departmental basis, based on the classification of the option holder as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Research and development	\$ 1,628	\$ 920	\$ 4,490	\$ 2,091
General and administrative	1,859	958	4,863	1,922
	<u>\$ 3,487</u>	<u>\$ 1,878</u>	<u>\$ 9,353</u>	<u>\$ 4,013</u>

No income tax benefits have been recognized in the statements of operations for stock-based compensation arrangements and no stock-based compensation costs have been capitalized as property and equipment as of September 30, 2020.

Unrecognized compensation expense as of September 30, 2020 totaled \$30.5 million related to non-vested stock options with a remaining weighted-average requisite service period of 2.7 years.

11. 401(k) Plan

The Company has a 401(k) plan that qualifies as a deferred compensation arrangement under Section 401 of the Code. Eligible employees may elect to defer a portion of their pretax earnings subject to certain statutory limits. The Company has not made any matching contributions to date.

12. Net Loss Per Share

The following outstanding potentially dilutive common shares were excluded from the computation of diluted net loss per share attributable to common stockholders for the periods presented because the impact of including them would have been antidilutive:

	Nine Months Ended September 30,	
	2020	2019
Common stock options	4,920,857	3,690,398
Convertible preferred stock warrants	49,997	49,997
Early exercised stock options	—	2,284
	<u>4,970,854</u>	<u>3,742,679</u>

13. Income Taxes

On March 27, 2020, the Coronavirus Aid, Relief and Economic Security (“CARES”) Act was enacted and signed into law. GAAP requires recognition of the tax effects of new legislation during the reporting period that includes the enactment date. The CARES Act, includes changes to the tax provisions that benefits business entities, and makes certain technical corrections to the 2017 Tax Cuts and Jobs Act. The tax relief measures for businesses include a five-year net operating loss carryback, suspension of annual deduction limitation of 80% of taxable income from net operating losses generated in a tax year beginning after December 31, 2017, changes in the deductibility of interest, acceleration of alternative minimum tax credit refunds, payroll tax relief, and a technical correction to allow accelerated deductions for qualified improvement property. The CARES Act also provides other non-tax benefits to assist those impacted by the pandemic. The Company has evaluated the impact of the CARES Act and determined there was no material impact to the income tax provision for the quarter.

14. Related Party Transactions

The Company recorded other income of \$2,000 and \$3,000 for the three months ended September 30, 2020 and 2019, respectively, and \$187,000 and \$486,000 for the nine months ended September 30, 2020 and 2019, respectively, under service contracts with a stockholder. The Company had a receivable from the stockholder at September 30, 2020 and December 31, 2019 of \$1,000 and \$121,000, respectively.

The Company recorded expense of \$0.3 million and \$0.4 million during the three months ended September 30, 2020 and 2019, respectively, and \$1.0 million and \$1.1 million for the nine months ended September 30, 2020 and 2019, respectively, related to intellectual property and other legal services performed by a related party. The Company owed \$0.2 million and \$0.1 million to the related party at September 30, 2020 and December 31, 2019, respectively.

The Company recorded expense of \$0.4 million and \$0.3 million during the three months ended September 30, 2020 and 2019, respectively, and \$1.3 million and \$2.3 million for the nine months ended September 30, 2020 and 2019, respectively, related to legal services performed by a related party. The Company owed \$0.3 million and \$0.2 million to the related party at September 30, 2020 and December 31, 2019, respectively.

The Company recorded research and development expense of \$61,000 and \$123,000 during the three months ended September 30, 2020 and 2019, respectively, and \$188,000 and \$335,000 for the nine months ended September 30, 2020 and 2019, respectively, under consulting agreements with two members of the Company’s board of directors. On August 22, 2019, one of the two members provided the Company with notice of his resignation from the Company’s board of directors. The Company owed \$74,000 and \$73,000 to the members of the Company’s board of directors at September 30, 2020 and December 31, 2019, respectively.

15. Subsequent Events

The Company has evaluated subsequent events that may require adjustments to or disclosure in the unaudited interim condensed consolidated financial statements through November 12, 2020, the date on which the unaudited interim condensed consolidated financial statements were available to be issued.

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

You should read the following discussion and analysis of our financial condition and results of operations together with (1) our unaudited condensed consolidated financial statements and related notes appearing in Part I, Item I of this Quarterly Report on Form 10-Q and (2) the audited consolidated financial statements and the related notes and the discussion under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations" for the fiscal year ended December 31, 2019 included in our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the Securities and Exchange Commission, or SEC, on March 11, 2020, or 2019 Form 10-K.

Special Note Regarding Forward-Looking Statements

The following discussion and this Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, Section 27A of the Securities Act and within the meaning of the Private Securities Litigation Reform Act of 1995. You can identify forward-looking statements by the use of the words "believe," "expect," "anticipate," "intend," "estimate," "project," "will," "should," "may," "plan," "assume" and other expressions that predict or indicate future events and trends and which do not relate to historical matters. You should not rely on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, some of which are beyond our control. These risks, uncertainties and other factors may cause our actual results, performance or achievements to be materially different from our anticipated future results, performance or achievements expressed or implied by the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the section titled "Risk Factors," set forth in Part II, Item 1A of this Quarterly Report on Form 10-Q. In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this Quarterly Report on Form 10-Q, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate we have conducted exhaustive inquiry into, or review of, all potentially available relevant information. We anticipate that subsequent events and developments will cause our views to change. New risks emerge from time to time, and it is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. While we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Quarterly Report on Form 10-Q and are cautioned not to place undue reliance on such forward-looking statements.

Overview

We are a clinical-stage biopharmaceutical company utilizing our differentiated platform to discover and develop novel antibody-based immunotherapeutics to treat a range of solid tumor types. While more traditional oncology drug discovery approaches attempt to generate antibodies against known targets, our approach relies on the human immune system to direct us to unique antibody-target pairs from patients experiencing a clinically meaningful, active immune response against their tumors. These unique antibody-target pairs represent a potentially novel and previously unexplored landscape of immuno-oncology targets. We believe the fact that our approach has the potential to deliver novel, previously unexplored immuno-oncology targets provides us with a significant competitive advantage over traditional approaches which focus on known targets that many companies are aware of and can pursue. We have utilized our drug discovery approach to identify over 1,800 distinct human antibodies that bind preferentially to tumor tissue from patients who are not the source of the antibody. Our lead product candidate, ATRC-101, is a monoclonal antibody with a novel mechanism of action and target derived from an antibody identified using our discovery platform. ATRC-101 reacts in vitro with a majority of human ovarian, non-small cell lung, colorectal and breast cancer samples from multiple patients. It has demonstrated robust anti-tumor activity as a single agent in multiple preclinical models, including one model in which PD-1 checkpoint inhibitors typically display limited activity. We have initiated a Phase 1b clinical trial in patients with select solid tumors in which the first patient was dosed in February 2020. Our efforts beyond ATRC-101 are focused on expanding our clinical pipeline by advancing additional product candidates using our

large library of "hit" antibodies that bind preferentially to tumor tissue across patients. To that end, via internal efforts and partnerships, we are both continuing to develop our platform and combining the novel antibodies that are generated by our platform with antibody "weaponization" technologies.

Since commencing operations in 2010, we have devoted substantially all of our resources to research and development, raising capital, building our management team and building our intellectual property portfolio. We do not have any products approved for marketing or sale and have not generated any revenue from product sales. We have funded our operations to date primarily from the sale of convertible preferred stock. We have also received more than \$15 million in payments to date under our service agreement with the Bill & Melinda Gates Foundation.

We have incurred significant operating losses since our inception. Our ability to generate product revenue sufficient to achieve or sustain profitability will depend on the successful development, regulatory approval and eventual commercialization of one or more of our current or future product candidates. Our net losses were \$22.9 million and \$15.9 million for the three months ended September 30, 2020 and 2019, respectively, and \$63.3 million and \$47.4 million for the nine months ended September 30, 2020 and 2019, respectively. As of September 30, 2020, we had an accumulated deficit of \$227.4 million. We anticipate that a substantial portion of our capital resources and efforts in the foreseeable future will be focused on discovering, completing the necessary development, obtaining regulatory approval for and preparing for potential commercialization of product candidates. As of September 30, 2020, we had cash, cash equivalents and investments of \$259.5 million.

We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. Our net losses may fluctuate significantly from period to period, depending on the timing of our planned preclinical studies and clinical trials and expenditures on other research and development activities. We expect our expenses will increase substantially over time as we:

- complete clinical trials for ATRC 101 and initiate preclinical studies on any additional product candidates that we may pursue in the future;
- continue research and development to expand our growing library of more than 1,800 antibodies and develop potential future product candidates from that collection;
- continue to invest in advancing our differentiated discovery platform, and the underlying technologies;
- seek marketing approvals for product candidates that successfully complete clinical trials;
- maintain, protect and expand our portfolio of intellectual property rights, including patents, trade secrets and know-how;
- implement additional operational, financial and management systems; and
- attract, hire and retain additional administrative, clinical, regulatory and research personnel.

Furthermore, as a result of the closing of our initial public offering, or IPO, in June 2019, we expect to incur increasing costs associated with operating as a public company, including significant legal, accounting, insurance, investor relations and other expenses that we have not incurred historically as a private company.

Impact of COVID-19

On March 11, 2020, COVID-19, a disease caused by a novel strain of the coronavirus, was characterized as a pandemic by the World Health Organization. Since December 2019, COVID-19 has spread rapidly, with a high concentration of cases in the United States where we operate. The rapid spread has resulted in authorities implementing numerous measures to contain the virus, such as travel bans and restrictions, quarantines, social distancing requirements, shelter-in-place orders and business shutdowns. As the COVID-19 pandemic unfolded globally, we transitioned to a fully remote working environment. As a result, our laboratories and office locations were closed for more than two months and partially re-opened in June 2020 for only a small number of critical lab-based personnel to resume limited operations.

We are currently experiencing changes in our operations including temporary closures of lab activity, delays from third-party service providers, and slower enrollment in our clinical studies during the second and third quarters of fiscal 2020. The financial results for the three months and nine months ended September 30, 2020 reflect a decrease in

overall operating expenses as a result of these impacted activities. We are continuing to monitor the impact of the COVID-19 pandemic on our business. As of September 30, 2020, we have not identified any significant disruption or impairment of our assets due to the COVID-19 pandemic.

On March 27, 2020, the U.S. government enacted the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, which provides emergency assistance for individuals, families, and businesses affected by COVID-19. One such measure is the employer retention payroll tax credit, under which, eligible employers may claim a credit against applicable employment taxes. The maximum credit may be worth up to \$5,000 per eligible employee. We assessed our eligibility under the provision and recognized a payroll tax credit of \$598,000 in the quarter ended June 30, 2020. We expect eligible credits in future quarters to be negligible.

Financial Operations Overview

Revenue

We have no products approved for marketing or commercial sale and have never generated any revenue from product sales.

Operating Expenses

Research and Development

Research and development expenses represent costs incurred in performing research, development and manufacturing activities in support of our own product development efforts, including intellectual property legal expenses, salaries, employee benefits and stock-based compensation for personnel contributing to research and development activities, laboratory supplies, outsourced research and development expenses, professional services and allocated facilities-related costs. We expect our research and development expenses to increase in the foreseeable future as we continue to invest in our differentiated discovery platform to expand our pipeline of product candidates, advance our product candidates into and through preclinical studies and clinical trials and pursue regulatory approval of our product candidates.

General and Administrative

Our general and administrative expenses consist primarily of personnel costs, allocated facilities costs and other expenses for outside professional services, including legal, human resource, audit and accounting services. We expect to incur additional general and administrative expenses as we continue to support the growth of our business and incur the costs of compliance associated with being a public company.

Interest and Other Income (Expense)

Other income (expense) includes other income which represents amounts received from partners for research and discovery services, interest income earned on our cash, cash equivalents and investments, interest expense, revaluation expense resulting from the liability recorded for certain preferred stock warrants and gains or losses on the periodic disposals of property and equipment.

Results of Operations

Comparison of the three months ended September 30, 2020 and 2019

The following table summarizes our results of operations during the respective periods:

	Three Months Ended September 30,		Change	
	2020	2019	\$	%
	(in thousands)			
Operating expenses:				
Research and development	\$ 16,808	\$ 12,812	\$ 3,996	31 %
General and administrative	6,614	4,864	1,750	36 %
Total operating expenses	23,422	17,676	5,746	33 %
Operating Loss	(23,422)	(17,676)	(5,746)	33 %
Other income (expense), net:				
Other income	353	619	(266)	(43)%
Interest income	142	1,189	(1,047)	(88)%
Interest expense	(1)	(1)	—	— %
Foreign exchange loss	—	(1)	1	*
Total other income, net	494	1,806	(1,312)	(73)%
Income tax expense	(1)	(1)	—	*
Net Loss	<u>\$ (22,929)</u>	<u>\$ (15,871)</u>	<u>\$ (7,058)</u>	44 %

* Not meaningful

Research and Development

The following table summarizes our research and development expenses incurred during the respective periods:

	Three Months Ended September 30,	
	2020	2019
	(in thousands)	
Personnel related (including stock-based compensation)	\$ 6,713	\$ 5,429
Product and other contract services	3,433	2,376
Laboratory supplies and equipment	2,255	1,653
Consulting, legal and other services	1,168	1,386
Facility related	2,720	1,054
Other	519	914
Total research and development expenses	<u>\$16,808</u>	<u>\$12,812</u>

Research and development expenses increased by \$4.0 million, or 31%, during the three months ended September 30, 2020 compared to the same period in 2019. The increase was primarily attributable to higher personnel-related expenses of \$1.3 million as a result of additional employee headcount, a \$1.7 million increase in facility expenses due to expansion of lab facilities and activities in an additional location, a \$1.1 million increase in product and other contract services for increased clinical trial activities.

General and Administrative

The following table summarizes our general and administrative expenses incurred during the respective periods:

	Three Months Ended	
	September 30,	
	2020	2019
	(in thousands)	
Personnel related (including stock-based compensation)	\$ 3,877	\$ 2,700
Consulting, legal and other services	498	682
Facility related	911	356
Other	1,328	1,126
Total general and administrative expenses	<u>\$ 6,614</u>	<u>\$ 4,864</u>

General and administrative expenses increased by \$1.8 million, or 36%, during the three months ended September 30, 2020 compared to the same period in 2019. The increase consists of a \$1.2 million increase in personnel-related expenses, including stock-based compensation, as a result of additional employee headcount, and a \$0.6 million increase in facility related expense primarily attributable to our new office facilities.

Other Income

Other income is comprised of amounts earned from research and discovery services provided to partners under service agreements. Other income decreased by \$0.3 million during the three months ended September 30, 2020 compared to the same period in 2019 due largely to the completion of service for Bristol Myers Squibb Company.

Interest Income

Interest income decreased to \$0.1 million during the three months ended September 30, 2020 as compared to \$1.2 million during the three months ended September 30, 2019 due primarily to a significant decrease in market interest rates on fixed income and money market securities.

Interest Expense

Interest expense during the three months ended September 30, 2020 and 2019 pertained to the interest portion of payments made on capital leases under which we acquired certain property and equipment.

Comparison of the nine months ended September 30, 2020 and 2019

The following table summarizes our results of operations during the respective periods:

	Nine Months Ended September 30,		Change	
	2020	2019	\$	%
	(in thousands)			
Operating expenses:				
Research and development	\$ 45,198	\$ 40,447	\$ 4,751	12 %
General and administrative	20,195	10,919	9,276	85 %
Total operating expenses	65,393	51,366	14,027	27 %
Operating Loss	(65,393)	(51,366)	(14,027)	27 %
Other income (expense), net:				
Other income	987	1,805	(818)	(45)%
Interest income	1,082	2,328	(1,246)	(54)%
Interest expense	(3)	(5)	2	(40)%
Preferred stock warrant liability revaluation	—	(123)	123	*
Foreign exchange loss	—	(1)	1	*
Loss on disposal of property and equipment	—	(7)	7	*
Total other income, net	2,066	3,997	(1,931)	(48)%
Income tax expense	(1)	(2)	1	*
Net Loss	\$ (63,328)	\$ (47,371)	\$ (15,957)	34 %

* Not meaningful

Research and Development

The following table summarizes our research and development expenses incurred during the respective periods:

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Personnel related (including stock-based compensation)	\$ 19,323	\$ 14,801
Product and other contract services	8,592	12,393
Laboratory supplies and equipment	5,750	4,631
Consulting, legal and other services	3,044	3,767
Facility related	6,855	3,174
Other	1,634	1,681
Total research and development expenses	\$ 45,198	\$ 40,447

Research and development expenses increased by \$4.8 million, or 12%, during the nine months ended September 30, 2020 compared to the same period in 2019. The increase was primarily attributable to higher personnel-related expenses of \$4.5 million as a result of additional employee headcount, a \$3.6 million increase in facility expenses due to expansion of lab facilities and activities in an additional location, a \$1.1 million increase in laboratory supplies and equipment expenses attributable to increased research headcount, offset by a \$3.8 million decrease in product and other contract services as a result of lower ATRC-101 manufacturing costs, partially offset by an increase in clinical trial activities.

General and Administrative

The following table summarizes our general and administrative expenses incurred during the respective periods:

	Nine Months Ended	
	September 30,	
	2020	2019
	(in thousands)	
Personnel related (including stock-based compensation)	\$ 11,002	\$ 6,392
Consulting, legal and other services	2,922	1,487
Facility related	2,311	702
Other	3,960	2,338
Total general and administrative expenses	<u>\$20,195</u>	<u>\$10,919</u>

General and administrative expenses increased by \$9.3 million, or 85%, during the nine months ended September 30, 2020 compared to the same period in 2019. The increase consists of a \$4.6 million increase in personnel-related expenses, including stock-based compensation, as a result of additional employee headcount and a \$1.4 million increase in consulting, legal and other services costs primarily due to increasing legal costs for corporate governance and business development, a \$1.6 million increase in other expenses related to software subscriptions and employee relations, and a \$1.6 million increase in facility related expense primarily attributable to our new office facilities.

Other Income

Other income is comprised of amounts earned from research and discovery services provided to partners under service agreements. Other income decreased by \$0.8 million during the nine months ended September 30, 2020 compared to the same period in 2019 due largely to the completion of service for Bristol Myers Squibb Company.

Interest Income

Interest income decreased to \$1.1 million during the nine months ended September 30, 2020 as compared to \$2.3 million during the nine months ended September 30, 2019 due primarily to a significant decrease in market interest rates on fixed income and money market securities.

Interest Expense

Interest expense during the nine months ended September 30, 2020 and 2019 pertained to the interest portion of payments made on capital leases under which we acquired certain property and equipment.

Preferred Stock Warrant Liability Revaluation

Preferred stock warrant liability revaluation recognizes changes in the fair value of the preferred stock warrants. Upon the closing of the IPO, the warrants to purchase 49,997 shares of our preferred stock were converted to warrants to purchase 49,997 shares of our Class A common stock. We recognized no expense during the nine months ended September 30, 2020, compared to the \$123,000 remeasurement expense recognized during the same period in 2019, as these warrants were reclassified to equity and not subject to remeasurement in the current period.

Liquidity and Capital Resources; Plan of Operations

Liquidity and Capital Resources

As of September 30, 2020, we had cash, cash equivalents and investments totaling \$259.5 million. Our cash and cash equivalents primarily consist of bank deposits and money market funds. Our investments consist of U.S. government treasury and agency securities, commercial paper and corporate debt securities.

Due to our significant research and development expenditures, we have generated significant operating losses since inception. We have funded our operations primarily through the sale of convertible preferred stock. We have also received more than \$15 million under our agreement with the Bill & Melinda Gates Foundation to date. In September 2018, we issued and sold 8,941,325 shares of Series C1 convertible preferred stock and Series C2 convertible preferred stock for gross proceeds of approximately \$125.0 million.

In June 2019, we completed our IPO of 6,452,500 shares of our Class A common stock and 2,000,000 shares of our Class B common stock at an offering price of \$17.00 per share, including 1,102,500 shares pursuant to the underwriters' option to purchase additional shares of the Company's Class A common stock. We received net proceeds of \$130.8 million in our IPO, after deducting underwriting discounts and commissions of \$10.1 million and offering expenses of \$2.8 million.

In July, 2020, we issued and sold 7,642,125 shares of our Class A common stock, and 781,250 shares of our Class B common stock at an offering price of \$16.00 per share. The net proceeds to us from this offering was \$126.1 million after deducting underwriting discounts and commissions of \$8.1 million and other offering expenses of \$0.6 million. As of September 30, 2020, we had an accumulated deficit of \$227.4 million.

Our management evaluates whether there are relevant conditions and events that in the aggregate raise substantial doubt about our ability to continue as a going concern and to meet its obligations as they become due within one year from the date that the financial statements are issued. We believe our existing cash and cash equivalents and short-term investments will be sufficient to fund our operating and capital needs for at least the next 12 months.

We are subject to risks and uncertainties common to early-stage companies in the biotechnology industry, including, but not limited to, development by competitors of new technological innovations, dependence on key personnel, protection of proprietary technology, compliance with government regulations and the ability to secure additional capital to fund operations. Identification and development of product candidates will require significant additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities. Even if our drug development efforts are successful, it is uncertain when, if ever, we will realize significant revenue from product sales.

Cash Flows

The following table summarizes our cash flows for the periods indicated:

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Cash used in operating activities	\$ (48,574)	\$ (42,319)
Cash used in investing activities	(104,370)	(35,890)
Cash provided by financing activities	128,432	131,131
Net increase (decrease) in cash and cash equivalents and restricted cash	<u>\$ (24,512)</u>	<u>\$ 52,922</u>

Cash Flows from Operating Activities

For the nine months ended September 30, 2020, cash used in operating activities was \$48.6 million, which consisted of a net loss of \$63.3 million, partially offset by \$11.1 million in non-cash charges and a net change of \$3.7 million in our net operating assets and liabilities. The non-cash charges consisted of depreciation and amortization of \$1.8 million and stock-based compensation of \$9.4 million. The change in operating assets and liabilities was primarily due to an increase in other current liabilities of \$0.9 million, resulting from an increase in contract liabilities from our new arrangement with an external partner, and a \$4.0 million increase in deferred rent primarily due to increases in lease incentive obligations and deferred rent, which was partially offset by a \$1.2 million increase in prepaid expenses and other current assets attributable to an increase in prepaid insurance.

For the nine months ended September 30, 2019, cash used in operating activities was \$42.3 million, which consisted of a net loss of \$47.4 million, partially offset by \$4.7 million in non-cash charges and a net change of \$0.4 million in our net operating assets and liabilities. The non-cash charges consisted of depreciation and amortization of \$1.2 million and stock-based compensation of \$4.0 million. The change in operating assets and liabilities was primarily due to increases in accounts payable of \$1.5 million and accrued expense of \$1.5 million resulting from contract manufacturing of ATRC-101 and increase in cost related to professional services and contract research, partially offset by increase in prepaid and other current asset by \$2.7 million resulting from increase in prepaid rent and prepaid insurance.

Cash Flows from Investing Activities

For the nine months ended September 30, 2020, cash used in investing activities of \$104.4 million was primarily related to \$100.8 million in net purchases of investments attributable to the proceeds from the common stock offering in July 2020.

For the nine months ended September 30, 2019, cash used in investing activities of \$35.9 million was primarily related to \$84.6 million in net purchases of investments, partially offset by \$50.0 million provided by proceeds from maturities of investments.

Cash Flows from Financing Activities

For the nine months ended September 30, 2020, cash provided by financing activities was \$128.4 million, which primarily related to \$126.7 million proceeds from the common stock offering, net of underwriting discounts and commissions, and \$1.0 million and \$1.1 million proceeds from our 2019 Employee Stock Purchase Plan and employee stock option exercises, respectively, partially offset by \$0.4 million payments of the common stock offering.

For the nine months ended September 30, 2019, cash provided by financing activities was \$131.1 million, which primarily related to \$133.6 million of proceeds from the IPO, net of underwriting discounts and commissions, partially offset by \$2.8 million payments of IPO costs.

Contractual Obligations and Other Commitments

The following table summarizes our contractual obligations as of September 30, 2020:

	Payments Due by Period				Total
	Less than 1 Year	1 to 3 Years	3 to 5 Years (in thousands)	More than 5 Years	
Contractual obligations:					
Operating lease obligations	\$ 5,871	\$ 14,853	\$ 14,606	\$ 63,507	\$ 98,837
Capital lease obligations	50	17	—	—	67
Total contractual obligations	<u>\$ 5,921</u>	<u>\$ 14,870</u>	<u>\$ 14,606</u>	<u>\$ 63,507</u>	<u>\$ 98,904</u>

The operating lease obligations noted above represent operating lease obligations related to our currently occupied premises in South San Francisco, California, and premises in San Carlos, California, which we took possession of in August 2020 for the construction of certain tenant improvements prior to our rent commencement. These leases expire at various dates through the second half of 2033.

In July 2019, we entered into a lease agreement, or the San Carlos Lease, for the lease of approximately 99,557 rentable square feet of office space located in San Carlos, California, which is intended to serve as our permanent headquarters, office and laboratory space following the completion of construction and certain tenant improvements. The term of the San Carlos Lease commenced in August 2020, and the premises were delivered to us for the construction of certain tenant improvements. The term will end on the date that is 144 months from the first day of the first full month after rent commences. Base rent for the San Carlos Lease is \$557,519 per month, with annual increases of 3%. We are obligated to provide a security deposit of \$1.1 million in the form of a letter of credit.

In July 2019, concurrently with the execution and delivery of the San Carlos Lease, we also entered into a lease agreement, or the Temporary Lease, for the lease of approximately 74,788 rentable square feet of office space located in South San Francisco, California, which is intended to serve as our temporary headquarters, office and laboratory space while our permanent headquarters is under construction. The Temporary Lease commenced in August 2019, and is expected to end 90 days following the substantial completion of certain tenant improvements and construction on the space covered by the San Carlos Lease. Base rent for the Temporary Lease is \$280,455 per month, with annual increases of 3%.

The capital lease obligations noted above represent certain property and equipment we acquired under capital leases. In 2017, we financed purchases of \$226,000 in equipment under a capital lease agreement. Outstanding amounts under the capital lease agreements are generally secured by liens on the related property and equipment.

In addition, we enter into contracts in the normal course of business with contract research organizations for preclinical and clinical studies as well as with contract development manufacturing organizations for the manufacture of materials for those studies. These agreements generally provide for termination at the request of either party with less than one-year notice and are, therefore, cancelable contracts and not reflected in the table above.

Off-Balance Sheet Arrangements

Since inception, we have not engaged in any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles, or GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements, as well as the reported revenue generated, and reported expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

There have been no material changes in our critical accounting policies from those disclosed in our 2019 Form 10-K, under the heading Management's Discussion and Analysis of Financial Condition and Results of Operations.

Emerging Growth Company Status

We are an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies.

We elected to use this extended transition period for complying with new or revised accounting standards, including but not limited to the new lease accounting standard, that have different effective dates for public and private companies until the earlier of the date that we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates. We early adopted Accounting Standards Update 2014-09, Revenue from Contracts with Customers (Accounting Standards Codification Topic 606), and Accounting Standards Update 2018-07, Improvements to Nonemployee Share-Based Payment Accounting (Accounting Standards Codification Topic 718), as the JOBS Act does not preclude an emerging growth company from early adopting a new or revised accounting standard earlier than the time that such standard applies to private companies. We expect to use the extended transition period for any other new or revised accounting standards during the period in which we remain an emerging growth company.

We will remain an emerging growth company until the earliest of (i) December 31, 2024, (ii) the last day of our first fiscal year in which we have total annual gross revenues of at least \$1.07 billion, (iii) the date on which we are deemed to be a “large accelerated filer” under the rules of the Securities and Exchange Commission, which means the market value of our voting and non-voting common equity that is held by non-affiliates is equal to or exceeds \$700.0 million as of the prior June 30th and (iv) the date on which we have issued more than \$1.0 billion in non-convertible debt securities during the prior three-year period.

Recent Accounting Pronouncements

See Note 2, *Summary of Significant Accounting Policies*, in our Notes to Condensed Consolidated Financial Statements (Unaudited) included in Part I, Item 1 of this Quarterly Report on Form 10-Q for a discussion of recent accounting pronouncements.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

We have operations both within the United States and internationally, and we are exposed to market risk in the ordinary course of business.

Interest Rate Risk

The primary objectives of our investment activities are to ensure liquidity and to preserve capital. We are exposed to market risks in the ordinary course of our business. These risks include interest rate sensitivities. We held cash, cash equivalents and investments of \$259.5 million and \$183.4 million as of September 30, 2020 and December 31, 2019, respectively. We generally hold our cash in interest-bearing money market accounts. Historical fluctuations in interest rates have not been significant for us. Due to the short-term maturities of our cash equivalents and the low risk profile of our investments, an immediate 100 basis point change in interest rates would not have a material effect on the fair market value of our cash equivalents or investments.

Foreign Currency

The U.S. dollar is our functional currency and the functional currency of our subsidiary is Singapore dollars. For consolidation purposes, assets and liabilities of our subsidiary are translated into U.S. dollars at exchange rates in effect at the balance sheet date. Revenue and expenses are translated at average exchange rates in effect during the period. Gains and losses from transactions denominated in foreign currency are included in the accumulated other comprehensive loss component of stockholders' equity (deficit). Translation adjustments are not included in earnings

unless they are realized through a sale or upon a complete or substantially complete liquidation of our net investment in its foreign operations.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management is responsible for establishing and maintaining adequate “internal control over financial reporting,” as such term is defined under Rule 13a-15(f) of the Exchange Act. We maintain internal control over financial reporting designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of our financial statements; providing reasonable assurance that receipts and expenditures of our assets are made in accordance with management’s authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements would be prevented or detected on a timely basis.

We maintain “disclosure controls and procedures,” as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act 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 our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2020. Based on the evaluation of our disclosure controls and procedures as of September 30, 2020, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Remediation of Previously Identified Material Weaknesses

Our management previously identified and disclosed a material weakness in our internal control over financial reporting at June 24, 2019 which related to a lack of application-based controls inherent in our enterprise resource planning, or ERP, system used for maintaining our financial books and records.

As of December 31, 2019, our management sufficiently completed its remediation of this material weakness by taking the following actions:

- We implemented a new ERP system that is our system of record for our financial books and records from January 1, 2019 forward. This new ERP system has strong application-based controls inherent in its design that provide a much stronger internal control infrastructure for financial reporting and for our internal control procedures.
- We strengthened the segregation of duties by hiring additional personnel and implementing workflows to appropriately segregate the incompatible duties of custody of assets, approvals and authorizations, and recording of transactions.
- We designed additional controls around identification, documentation and application of technical accounting guidance with particular emphasis on events outside the ordinary course of business. These controls include the implementation of additional supervision and review activities by qualified personnel, the preparation of formal accounting memoranda to support our conclusions on technical accounting

matters, and the development and use of checklists and research tools to assist in compliance with GAAP with regard to complex accounting issues.

- We developed and implemented policies and procedures related to security access, including security access reviews of our key financial systems' users to ensure the appropriateness of their roles and security access levels.
- We performed testing related to the functioning of these controls and continue to monitor these controls and make enhancements as needed.

We have completed the documentation and review of the corrective actions described above and our management has concluded that the design and operation of our closing and financial reporting processes is effective and therefore that this previously identified material weakness has been fully remediated as of December 31, 2019.

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the period covered by this Quarterly Report on Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, we may become involved in litigation relating to claims arising from the ordinary course of business. Our management believes that there are currently no claims or actions pending against us, the ultimate disposition of which would have a material adverse effect on our results of operations, financial condition or cash flows.

Item 1A. Risk Factors

Our operations and financial results are subject to various risks and uncertainties including those described below. You should consider and read carefully all of the risks and uncertainties described below, in addition to other information contained in this Quarterly Report on Form 10-Q, including our consolidated financial statements and related notes, our “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” as well as our other public filings. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that adversely affect our business. If any of the following risks or additional risks and uncertainties not presently known to us, that we currently believe to be immaterial, or others not specified below materialize, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that case, the trading price of our Class A common stock could decline, and you may lose all or part of your original investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations and the market price of our common stock. This Quarterly Report on Form 10-Q also contains forward-looking statements and estimates that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of specific factors, including the risks and uncertainties described below. The risks relating to our business set forth in our 2019 Form 10-K, are set forth below and are unchanged substantively as of September 30, 2020, except for those risks designated by an asterisk ().*

Summary Risk Factors

The success of our business will depend on a number of factors, many of which are beyond our control and involve risks, including but not limited to the following:*

Risks Related to Our Business

- We are a clinical-stage biopharmaceutical company with a history of losses. We expect to continue to incur significant losses for the foreseeable future and may never achieve or maintain profitability, which could result in a decline in the market value of our Class A common stock.
- ATRC 101 is in clinical trials. It may fail in development or suffer delays that materially and adversely affect its commercial viability.
- ATRC 101 may not demonstrate the combination of safety and efficacy necessary to become approvable or commercially viable.
- COVID-19 could adversely impact our business and our operations, including at our laboratories and office locations, which were closed for more than two months and reopened in June 2020 only for lab-based personnel and certain essential personnel, and at our clinical trial sites, as well as the business and operations of our manufacturers, CROs or other third parties with whom we conduct business.
- Failure to successfully validate, develop and obtain regulatory approval for companion diagnostics for our product candidates could harm our drug development strategy and operational results.
- We may not be successful in our efforts to use and expand our discovery platform to build a pipeline of product candidates.
- Our approach to developing and identifying our antibodies using our discovery platform is novel and unproven and may not result in marketable products.
- The market may not be receptive to our current or potential future product candidates, and we may not generate any revenue from the sale or licensing of our product candidates.
- If there are undesirable side effects caused by ATRC-101 or any potential future product candidate in clinical trials or after receiving marketing approval, our ability to market and derive revenue from the product candidate could be compromised.
- We will need substantial additional funds to advance development of product candidates and our discovery platform, and we cannot guarantee that we will have sufficient funds available in the future to develop and commercialize our current or potential future product candidates.
- We may expend our limited resources to pursue a particular product candidate and fail to capitalize on product candidates that may be more profitable or for which there is a greater likelihood of success.
- We have obtained rights to use human samples in furtherance of our research and development of our current and potential future product candidates. However, if we fail to obtain appropriate consent or exceed the scope of the permission to use these samples, we may become liable for monetary damages for, obligated to pay continuing royalties for or required to cease usage of the samples.
- We have entered into, and may in the future enter into, strategic transactions for the research, development and commercialization of certain of our current and potential future product candidates. If any of these transactions are not successful, then we may not be able to capitalize on the market potential of such product candidates. Further, we may not be able to enter into future transactions on acceptable terms, if at all, which could adversely affect our ability to develop and commercialize current and potential future product candidates, impact our cash position, increase our expense, and present significant distractions to our management.
- If third parties on which we intend to rely to conduct certain preclinical studies, or any future clinical trials, do not perform as contractually required, fail to satisfy regulatory or legal requirements or miss expected deadlines, our development program could be delayed or fail, which would have material and adverse impacts on our business and financial condition.
- Because we may rely on third parties for manufacturing and supply of our product candidates, some of which are or may be sole source vendors, for preclinical and clinical development materials and commercial supplies, our supply may become limited or interrupted or may not be of satisfactory quantity or quality.

Risks Related to Our Intellectual Property

- If we are unable to obtain or protect intellectual property rights related to our technology and current or future product candidates, or if our intellectual property rights are inadequate, we may not be able to compete effectively.
- If we fail to comply with our obligations under any license, collaboration or other intellectual property-related agreements, we may be required to pay damages and could lose intellectual property rights that may be necessary for developing, commercializing and protecting our current or future technologies or product candidates or we could lose certain rights to grant sublicenses.
- Patent terms may not be able to protect our competitive position for an adequate period of time with respect to our current or future technologies or product candidates.
- Other companies or organizations may challenge our or our licensors' patent rights or may assert patent rights that prevent us from developing and commercializing our current or future products.
- Third parties may initiate legal proceedings alleging that we are infringing, misappropriating or violating their intellectual property rights, the outcome of which would be uncertain and could have a material adverse impact on the success of our business.

Risks Related to Government Regulation

- Clinical development includes a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results
- We may be unable to obtain U.S. or foreign regulatory approval and, as a result, be unable to commercialize ATRC 101 or potential future product candidates.
- Even if we receive regulatory approval for any of our current or potential future product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense. Additionally, our current or potential future product candidates, if approved, could be subject to labeling and other restrictions and market withdrawal and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our products.
- We may attempt to secure approval from the FDA through the use of accelerated registration pathways. If unable to obtain approval under an accelerated pathway, we may be required to conduct additional preclinical studies or clinical trials which could increase the expense of obtaining, reduce the likelihood of obtaining or delay the timing of obtaining, necessary marketing approvals. Even if we receive accelerated approval from the FDA, if our confirmatory trials do not verify clinical benefit, or if we do not comply with rigorous post-marketing requirements, the FDA may seek to withdraw accelerated approval.

Risks Related to Our Class A Common Stock

- We are subject to U.S. and foreign anti-corruption and anti-money laundering laws with respect to our operations and non-compliance with such laws can subject us to criminal or civil liability and harm our business.
- Our stock price may be volatile and purchasers of our Class A common stock could incur substantial losses.
- The future issuance of equity or of debt securities that are convertible into equity would dilute our share capital.
- Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.
- Our ability to use net operating losses, or NOLs, to offset future taxable income may be subject to certain limitations.
- We previously identified a material weakness in our internal control over financial reporting, which we believe has now been remediated. Any future failure to establish and maintain effective internal control over financial reporting could result in material misstatements in our financial statements and cause investors to lose confidence in our reported financial information, which in turn could cause the trading price of our securities to decline.

Risks Related to Our Business

We are a clinical-stage biopharmaceutical company with a history of losses. We expect to continue to incur significant losses for the foreseeable future and may never achieve or maintain profitability, which could result in a decline in the market value of our Class A common stock.*

We are a clinical-stage biopharmaceutical company with a history of losses. Since our inception, we have devoted substantially all of our resources to research and development, raising capital, building our management team and building our intellectual property portfolio, and we have incurred significant operating losses. As of September 30, 2020, and December 31, 2019, we had accumulated deficits of \$227.4 million and \$164.1 million, respectively. For the three months ended September 30, 2020 and 2019, our net losses were \$22.9 million and \$15.9 million, respectively. For the nine months ended September 30, 2020 and 2019, our net losses were \$63.3 million and \$47.4 million, respectively. Substantially all of our losses have resulted from expenses incurred in connection with our research and development programs and from general and administrative costs associated with our operations. To date, we have not generated any revenue from product sales, and we have not sought or obtained regulatory approval for any product candidate. Furthermore, we do not expect to generate any revenue from product sales for the foreseeable future, and we expect to continue to incur significant operating losses for the foreseeable future due to the cost of research and development, preclinical studies and clinical trials and the regulatory approval process for our current and potential future product candidates.

We expect our net losses to increase substantially as we enter into clinical development of our lead product candidate, ATRC-101. However, the amount of our future losses is uncertain. Our ability to achieve or sustain profitability, if ever, will depend on, among other things, successfully developing product candidates, obtaining regulatory approvals to market and commercialize product candidates, manufacturing any approved products on commercially reasonable terms, entering into potential future partnerships, establishing a sales and marketing organization or suitable third-party alternatives for any approved product and raising sufficient funds to finance business activities. If we, or our potential future partners, are unable to commercialize one or more of our product candidates, or if sales revenue from any product candidate that receives approval is insufficient, we will not achieve or sustain profitability, which could have a material and adverse effect on our business, financial condition, results of operations and prospects. Any predictions you make about our future success or viability may not be as accurate as they could be if we had a history of successfully developing and commercializing pharmaceutical products.

ATRC-101 is in clinical trials. It may fail in development or suffer delays that materially and adversely affect its commercial viability.*

In February 2020, we initiated a Phase 1b clinical trial for ATRC-101 in patients with solid tumors. We have no products on the market or that have gained regulatory approval. Other than ATRC-101, we currently have no product candidates and none of our potential future product candidates have ever been tested in humans. Our ability to achieve and sustain profitability depends on obtaining regulatory approvals for and successfully commercializing product candidates, either alone or with partners.

Before obtaining regulatory approval for the commercial distribution of product candidates, we or a partner must conduct extensive preclinical studies, followed by clinical trials to demonstrate the safety and efficacy of our product candidates in humans. We cannot be certain of the timely completion or outcome of our preclinical studies and cannot predict if the FDA or other regulatory authorities will accept our proposed clinical programs or if the outcome of our preclinical studies will ultimately support the further development of our preclinical programs. As a result, we cannot be sure that we will be able to submit INDs or similar applications for our preclinical programs on the timelines we expect, if at all, and we cannot be sure that submission of INDs or similar applications will result in the FDA or other regulatory authorities allowing clinical trials to begin.

In addition, on March 11, 2020, a disease caused by the novel strain of the coronavirus, or COVID-19, was characterized as a pandemic by the World Health Organization, and in response to COVID-19 the FDA announced its intention to postpone most foreign inspections of manufacturing facilities and products, and regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to COVID-19. If a

prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have an adverse effect on the timing and progress of our current or future clinical trials and our business.

ATRC-101 is in early clinical development, and we are subject to the risks of failure inherent in the development of product candidates based on novel approaches, targets and mechanisms of action. Accordingly, you should consider our prospects in light of the costs, uncertainties, delays and difficulties frequently encountered by clinical stage biopharmaceutical companies such as ours.

We may not have the financial resources to continue development of, or to enter into new collaborations for, ATRC-101 or any potential future product candidates. This may be exacerbated if we experience any issues that delay or prevent regulatory approval of, or our ability to commercialize, a product candidate, such as:

- negative or inconclusive results from our clinical trials or the clinical trials of others for product candidates similar to ours, leading to a decision or requirement to conduct additional preclinical studies or clinical trials or abandon a program;
- product-related side effects experienced by participants in our clinical trials or by individuals using drugs or therapeutic antibodies similar to ours;
- delays in submitting IND applications or comparable foreign applications, or delays or failure in obtaining the necessary approvals from regulators to commence a clinical trial, or a suspension or termination of a clinical trial once commenced;
- conditions imposed by the FDA, or other regulatory authorities regarding the scope or design of our clinical trials;
- delays in enrolling research subjects in clinical trials;
- high drop-out rates of research subjects;
- inadequate supply or quality of product candidate components or materials or other supplies necessary for the conduct of our clinical trials;
- greater-than-anticipated clinical trial costs;
- poor effectiveness of our product candidates during clinical trials;
- unfavorable FDA or other regulatory agency inspection and review of a clinical trial or manufacture site;
- failure of our third-party contractors or investigators to comply with regulatory requirements or otherwise meet their contractual obligations in a timely manner, or at all;
- delays and changes in regulatory requirements, policies and guidelines; or
- the FDA or other regulatory agencies interpreting our data differently than we do.

As a result of COVID-19, we have experienced, and may experience in the future, disruptions or delays in our clinical trial for ATRC-101. These disruptions or delays may affect, among other things, enrolling patients, initiating sites, recruiting clinical site investigators and site personnel, achieving patient compliance with clinical trial protocols if COVID-19 containment measures or other limitations or restrictions impede patient movement or interrupt healthcare services, monitoring clinical trial sites due to travel restrictions related to COVID-19, and collecting sufficient clinical data. For example, we have experienced delays in initiating sites and achieving patient compliance with study-related procedures. We are working closely with our current and potential clinical trial sites to mitigate any disruptions or delays. COVID-19 is likely to impact our ability to initiate additional clinical trial sites quickly, but at this time we cannot predict the full extent of this impact, or any other potential impact of COVID-19, on our clinical trial for ATRC-101.

Further, we and our potential future partners may never receive approval to market and commercialize any product candidate. Even if we or a potential future partner obtains regulatory approval, the approval may be for targets, disease indications or patient populations that are not as broad as we intended or desired or may require labeling that includes significant use or distribution restrictions or safety warnings. We or a potential future partner may be subject to post-marketing testing requirements to maintain regulatory approval.

ATRC-101 may not demonstrate the combination of safety and efficacy necessary to become approvable or commercially viable.

We may ultimately discover that ATRC-101 does not possess certain properties that we currently believe are helpful for therapeutic effectiveness and safety. For example, although ATRC-101 has exhibited encouraging results in animal studies, including anti-tumor activity and safety, it may not demonstrate the same properties in humans and may interact with human biological systems in unforeseen, ineffective or harmful ways. As a result, we may never succeed in developing a marketable product based on ATRC-101. If ATRC-101 or any of our potential future product candidates prove to be ineffective, unsafe or commercially unviable, our entire pipeline could have little, if any, value, which could require us to change our focus and approach to antibody discovery and development, which would have a material and adverse effect on our business, financial condition, results of operations and prospects.

COVID-19 could adversely impact our business and our operations, including at our laboratories and office locations, which were closed for more than two months and reopened in June 2020 for lab-based personnel and certain essential personnel, and at our clinical trial sites, as well as the business and operations of our manufacturers, CROs or other third parties with whom we conduct business.*

COVID-19 could adversely impact our business and operations, and the business and operations of our manufacturers, CROs and other third parties with whom we conduct our business. COVID-19 has resulted in authorities implementing numerous measures to contain the virus. These containment measures include travel bans and restrictions, quarantines, social distancing requirements, shelter-in-place orders and business shutdowns. In compliance with these containment measures, we transitioned to a fully remote working environment and our laboratories and office locations were closed for more than two months. We reopened our laboratories and office locations in June 2020 and a majority of our lab-based personnel and certain essential personnel have returned to work at these locations. However, all other personnel are still working remotely. We do not know if and when we may have to close our laboratories and office locations again, or when these locations will reopen for all personnel. COVID-19 could adversely impact our business, including:

- disruptions or delays in our preclinical studies or our clinical trial for ATRC-101, including enrolling patients, initiating sites, recruiting clinical site investigators and site personnel, achieving patient compliance with clinical trial protocols if containment measures or other limitations or restrictions impede patient movement or interrupt healthcare services, monitoring clinical trial sites due to travel restrictions related to COVID-19, and collecting sufficient clinical data;
- disruptions or delays in our manufacturing activities, including our supply of preclinical, clinical, and commercial materials from existing third-party manufacturers and our ability to engage new third-party manufacturers;
- disruptions or delays in our efforts to use and expand our discovery platform, both internally and externally with third parties, including decreased productivity of our lab-based personnel due to restrictions related to COVID-19 at our laboratory and office locations and delays in receiving necessary supplies and other materials;
- delays in activities of the FDA or other regulatory authorities related to our clinical trial for ATRC-101 or any future clinical trials;
- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of clinical trials;
- changes in laws or regulations as a result of COVID-19 that may require us to change the ways in which our clinical trial is conducted and incur unexpected costs, or require us to discontinue the clinical trial;
- interruption in global commercial transportation and shipping that may affect the transport of clinical trial materials;
- delays in necessary interactions with local regulators, ethics committees and other agencies and contractors due to limitations in employee resources or forced furlough of government personnel;
- delays and decreased productivity as a result of the majority of our personnel working remotely;
- the potential closure of our laboratories and offices again due to future COVID-19 outbreaks where our laboratories and offices are located;

- disruptions, delays and decreased productivity in the event that any of our personnel contract COVID-19, including as a result of the reopening of our laboratories and office locations and the return of certain personnel to these locations, which could necessitate quarantining and contact tracing efforts;
- disruptions or delays in using and expanding our discovery platform; and
- delays or difficulties in our ability to access capital.

Currently, patient screening continues in our clinical trial for ATRC-101. However, COVID-19 is likely to impact our ability to initiate additional clinical trial sites quickly, which may result in enrollment delays. In addition, we experienced slower enrollment in the second and third quarters of fiscal 2020.

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

COVID-19 continues to evolve rapidly. The potential impacts of COVID-19, on us and third parties with whom we conduct business, including on our clinical studies and our clinical trial for ATRC-101 and related timelines, as well as our preclinical activities, will depend on future developments that are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, containment measures and other limitations and restrictions, business disruptions and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. Accordingly, we do not yet know the full extent of the potential impacts on our business, our clinical and regulatory activities, healthcare systems or the global economy as a whole. However, these impacts could adversely affect our business, financial condition, results of operations and growth prospects, which could also have the effect of heightening many of the other risks and uncertainties described in this “Risk Factors” section.

Failure to successfully validate, develop and obtain regulatory approval for companion diagnostics for our product candidates could harm our drug development strategy and operational results.

As one of the elements of our clinical development approach, we may seek to develop lab-based tests to screen and identify subsets of patients who are more likely to benefit from our product candidates, more commonly referred to as companion diagnostics. To achieve this, we may seek to develop and commercialize such companion diagnostics ourselves or through third-party collaborators. Companion diagnostics are generally developed in conjunction with clinical programs for the associated product and can be helpful in enrolling patients in clinical studies who are more likely to respond to the specific therapeutic being developed. The approval of a companion diagnostic as part of the product label could limit the use of the product candidate to those patients who are more likely to benefit from our product candidate.

Companion diagnostics are subject to regulation by the FDA and other regulatory authorities as medical devices and require separate clearance or approval prior to their commercialization. To date, the FDA has required premarket approval of all companion diagnostics for oncology therapies. We and our third-party collaborators may encounter difficulties in developing and obtaining approval for these companion diagnostics. Any delay or failure by us or third-party collaborators to develop or obtain regulatory approval of a companion diagnostic could delay or prevent approval of our related product candidates. The time and cost associated with developing a companion diagnostic may not prove to have been necessary in order to successfully market the product.

We may not be successful in our efforts to use and expand our discovery platform to build a pipeline of product candidates.*

A key element of our strategy is to use and expand our discovery platform to build a pipeline of product candidates and progress these product candidates through clinical development for the treatment of various diseases. Although our research and development efforts to date have resulted in our discovery and preclinical development of

ATRC-101, ATRC-101 may not be safe or effective as a cancer treatment, and we may not be able to develop any other product candidates. In addition, as a result of COVID-19, we expect disruptions and delays in our efforts, both internally and externally with third parties, to use and expand our discovery platform.

Our discovery platform is evolving and may not reach a state at which building a pipeline of product candidates is possible. Even if we are successful in building our pipeline of product candidates, the potential product candidates that we identify may not be suitable for clinical development or generate acceptable clinical data, including as a result of being shown to have unacceptable toxicity or other characteristics that indicate that they are unlikely to be products that will receive marketing approval from the FDA or other regulatory authorities or achieve market acceptance. If we do not successfully develop and commercialize product candidates, we will not be able to generate product revenue in the future.

Our approach to developing and identifying our antibodies using our discovery platform is novel and unproven and may not result in marketable products.

We plan to develop a pipeline of product candidates using our discovery platform. We believe that we may be able to overcome certain key limitations of the current oncology drug discovery paradigm by focusing on an active human anti-tumor immune response that develops over time. However, our scientific research that forms the basis of our efforts to discover product candidates based on our discovery platform is ongoing. Further, the scientific evidence to support the feasibility of developing therapeutic antibodies based on our platform has not been established. We may not be correct in our beliefs about the differentiated nature of our platform to competing technologies, and our platform may not prove to be superior. If our discovery platform is not able to develop approved antibody constructs that are effective at the necessary speed or scale, it could have a material and adverse effect on our business, financial condition, results of operations and prospects.

The market may not be receptive to our current or potential future product candidates, and we may not generate any revenue from the sale or licensing of our product candidates.

Even if regulatory approval is obtained for a product candidate, including ATRC-101, we may not generate or sustain revenue from sales of the product. Market acceptance of our current and potential future product candidates will depend on, among other factors:

- the timing of our receipt of any marketing and commercialization approvals;
- the terms of any approvals and the countries in which approvals are obtained;
- the safety and efficacy of our product candidates;
- the prevalence and severity of any adverse side effects associated with our product candidates;
- limitations or warnings contained in any labeling approved by the FDA or other regulatory authority;
- relative convenience and ease of administration of our product candidates;
- the success of our physician education programs;
- the availability of coverage and adequate government and third-party payor reimbursement;
- the pricing of our products, particularly as compared to alternative treatments; and
- availability of alternative effective treatments for the disease indications our product candidates are intended to treat and the relative risks, benefits and costs of those treatments.

If any product candidate we commercialize fails to achieve market acceptance, it could have a material and adverse effect on our business, financial condition, results of operations and prospects.

If there are undesirable side effects caused by ATRC-101 or any potential future product candidate in clinical trials or after receiving marketing approval, our ability to market and derive revenue from the product candidate could be compromised.

Undesirable side effects caused by ATRC-101 or any potential future product candidate could cause regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other regulatory authorities. It is likely that there will be side effects associated with

the use of ATRC-101 or any potential future product candidate. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of these side effects. In such an event, our trials could be suspended or terminated and the FDA or other regulatory authorities could order us to cease further development of or deny approval of a product candidate for any or all targeted indications. Such side effects could also affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may materially and adversely affect our business and financial condition and impair our ability to generate revenues.

Further, clinical trials by their nature utilize a sample of the potential patient population. With a limited number of patients and limited duration of exposure, rare and severe side effects of a product candidate may only be uncovered when a significantly larger number of patients are exposed to the product candidate or when patients are exposed for a longer period of time.

In the event that any of our current or potential future product candidates receive regulatory approval and we or others identify undesirable side effects caused by one of these products, any of the following adverse events could occur, which could result in the loss of significant revenue to us and materially and adversely affect our results of operations and business:

- regulatory authorities may withdraw their approval of the product or seize the product;
- we may be required to recall the product or change the way the product is administered to patients;
- additional restrictions may be imposed on the marketing of the particular product or the manufacturing processes for the product or any component thereof;
- we may be subject to fines, injunctions or the imposition of civil or criminal penalties;
- regulatory authorities may require the addition of labeling statements, such as a “black box” warning or a contraindication;
- we may be required to create a Medication Guide outlining the risks of such side effects for distribution to patients;
- we could be sued and held liable for harm caused to patients;
- the product may become less competitive; and
- our reputation may suffer.

We will need substantial additional funds to advance development of product candidates and our discovery platform, and we cannot guarantee that we will have sufficient funds available in the future to develop and commercialize our current or potential future product candidates.*

The development of biopharmaceutical product candidates is capital-intensive. If ATRC-101 or potential future product candidates advance through preclinical studies and clinical trials, we will need substantial additional funds to expand our development, regulatory, manufacturing, marketing and sales capabilities. We have used substantial funds to develop our discovery platform and ATRC-101 and will require significant funds to continue to develop our discovery platform and conduct further research and development, including preclinical studies and clinical trials of ATRC-101 and additional potential future product candidates, to seek regulatory approvals for ATRC-101 and potential future product candidates and to manufacture and market products, if any, that are approved for commercial sale. In addition, we expect to incur additional costs associated with operating as a public company.

As of September 30, 2020, we had \$259.5 million in cash, cash equivalents, and investments. Based on our current operating plan, we believe that our cash and cash equivalents as of September 30, 2020 will be sufficient to fund our operations through the end of 2021. Our future capital requirements and the period for which we expect our existing resources to support our operations may vary significantly from what we expect. Our monthly spending levels vary based on new and ongoing research and development and other corporate activities. Because the length of time and activities associated with successful research and development of product candidates is highly uncertain, we are unable to estimate the actual funds we will require for development and any approved marketing and commercialization activities. The timing and amount of our operating expenditures will depend largely on:

- the timing and progress of preclinical and clinical development activities;
- the timing and progress of our development of our discovery platform;

- the price and pricing structure that we are able to obtain from our third-party contract manufacturers to manufacture our preclinical study and clinical trial materials and supplies;
- the number and scope of preclinical and clinical programs we decide to pursue;
- our ability to maintain our current licenses and research and development programs and to establish new collaborations;
- the progress of the development efforts of parties with whom we may in the future enter into collaboration and research and development agreements;
- the costs involved in obtaining, maintaining, enforcing and defending patents and other intellectual property rights;
- the cost and timing of regulatory approvals; and
- our efforts to enhance operational systems, secure sufficient laboratory space and hire additional personnel, including personnel to support development of our product candidates and satisfy our obligations as a public company.

To date, we have primarily financed our operations through the sale of equity securities and payments and other income received under discovery services agreements not related to our primary business. We may seek to raise any necessary additional capital through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing and distribution arrangements. We cannot assure you that we will be successful in acquiring additional funding at levels sufficient to fund our operations or on terms favorable to us. As a result of COVID-19, there could be a significant disruption of global financial markets, reducing our ability to raise capital. If we are unable to obtain adequate financing when needed, we may have to delay, reduce the scope of or suspend one or more of our preclinical studies, clinical trials, research and development programs or commercialization efforts. Because of the numerous risks and uncertainties associated with the development and commercialization of our current and potential future product candidates and the extent to which we may enter into collaborations with third parties to participate in their development and commercialization, we are unable to estimate the amounts of increased capital outlays and operating expenditures associated with our current and anticipated preclinical studies and clinical trials. To the extent that we raise additional capital through collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our current and potential future product candidates, future revenue streams or research programs or to grant licenses on terms that may not be favorable to us. If we do raise additional capital through public or private equity or convertible debt offerings, the ownership interest of our existing stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

We do not expect to realize revenue from product sales or royalties from licensed products in the foreseeable future, if at all, and unless and until our current and potential future product candidates are clinically tested, approved for commercialization and successfully marketed.

We may expend our limited resources to pursue a particular product candidate and fail to capitalize on product candidates that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we intend to focus our efforts on specific research and development programs, including clinical development of ATRC-101. As a result, we may forgo or delay pursuit of other opportunities, including with potential future product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable product candidates. 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 partnership, 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.

We have obtained rights to use human samples in furtherance of our research and development of our current and potential future product candidates. However, if we fail to obtain appropriate consent or exceed the scope of the permission to use these samples, we may become liable for monetary damages for, obligated to pay continuing royalties for or required to cease usage of the samples.

We begin our discovery process by gathering samples from patients. While we attempt to ensure that we, our study site partners or other providers have obtained these samples with informed consent and all necessary permissions, there is a risk that one or more patients or their representatives may assert that we have either failed to obtain informed consent or exceeded the scope of permission to use the patient's sample. We cannot guarantee that we would succeed in establishing that we had informed consent or appropriate permission, if a patient or patient representative contested the matter. In such circumstances, we could be required to pay monetary damages, to pay a continuing royalty on any products created or invented by analyzing the patient's sample or even to cease using the sample and any and all materials derived from or created through analysis of the sample, any of which could result in a change to our business plan and materially harm our business, financial condition, results of operations and prospects.

We have entered into, and may in the future enter into, strategic transactions for the research, development and commercialization of certain of our current and potential future product candidates. If any of these transactions are not successful, then we may not be able to capitalize on the market potential of such product candidates. Further, we may not be able to enter into future transactions on acceptable terms, if at all, which could adversely affect our ability to develop and commercialize current and potential future product candidates, impact our cash position, increase our expense, and present significant distractions to our management.*

From time to time, we have entered into, and may enter into in the future, strategic transactions, such as collaborations, acquisitions of companies, asset purchases, joint ventures and out- or in-licensing of product candidates or technologies. For example, in July 2020, we entered into a collaboration and license agreement with Xencor, Inc. Our ability to generate revenue from any of our strategic transactions will depend on our partners' abilities to successfully perform the functions assigned to them in these transactions. We cannot predict the success of any of our strategic transactions.

We also intend to evaluate and, if strategically attractive, seek to enter into additional collaborations in the future, including with biotechnology or biopharmaceutical companies or hospitals. The competition for partners is intense, and the negotiation process is time-consuming and complex. If we are not able to enter into strategic transactions, we may not have access to required liquidity or expertise to further develop our potential future product candidates or our discovery platform.

Any existing or potential future collaboration or other strategic transaction may require us to incur non-recurring or other charges, increase our near- and long-term expenditures and pose significant integration or implementation challenges or disrupt our management or business. We may acquire additional technologies and assets, form strategic alliances or create joint ventures with third parties that we believe will complement or augment our existing business, but we may not be able to realize the benefit of such acquisitions or collaborations. In addition, any new collaboration that we enter into may be on terms that are not optimal for us.

Our existing and future strategic transactions would entail numerous operational and financial risks, including:

- exposure to unknown liabilities;
- disruption of our business and diversion of our management's time and attention in order to manage a collaboration or develop acquired products, product candidates or technologies;
- incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs;
- higher-than-expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses;
- collaborators have significant discretion in determining the efforts and resources they apply to these collaborations, and may not pursue development of any product candidates we may develop or may elect

not to continue development programs based on preclinical study results, changes in the collaborator's strategic focus or other factors that may be beyond our control;

- collaborators could independently develop, or develop with third parties, products that may compete directly or indirectly with our product candidates if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the development or commercialization of our product candidates;
- difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business;
- disputes may arise between a collaborator and us, including with respect to the ownership of any intellectual property developed pursuant to our collaborations, that cause the delay or termination of the research, development or commercialization of a product candidate, or that result in costly litigation or arbitration that diverts management's attention and resources;
- impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership; and
- the inability to retain key employees of any acquired business.

Accordingly, although there can be no assurance that we will undertake or successfully complete any strategic transactions of the nature described above, any collaborations that we are currently engaged in or transactions we may complete in the future may be subject to the foregoing or other risks and our business could be materially harmed by such transactions. Conversely, any failure to enter any collaboration or other strategic transaction that would be beneficial to us could delay the development and potential commercialization of our product candidates and have a negative impact on the competitiveness of any product candidate that reaches market.

In addition, to the extent that any of our existing or future partners were to terminate a collaboration agreement, we may be forced to independently develop our current and future product candidates, including funding preclinical studies or clinical trials, assuming marketing and distribution costs and maintaining, enforcing and defending intellectual property rights, or, in certain instances, abandon product candidates altogether, any of which could result in a change to our business plan and materially harm our business, financial condition, results of operations and prospects.

If third parties on which we intend to rely to conduct certain preclinical studies, or any future clinical trials, do not perform as contractually required, fail to satisfy regulatory or legal requirements or miss expected deadlines, our development program could be delayed or fail, which would have material and adverse impacts on our business and financial condition.*

We intend to rely on third-party clinical investigators, contract research organizations, or CROs, clinical data management organizations and consultants to conduct, supervise and monitor certain preclinical studies and any clinical trials. Because we intend to rely on these third parties and will not have the ability to conduct certain preclinical studies or clinical trials independently, we will have less control over the timing, quality and other aspects of such preclinical studies and clinical trials than we would have had we conducted them on our own. These investigators, CROs and consultants will not be our employees and we will have limited control over the amount of time and resources that they dedicate to our programs. These third parties may have contractual relationships with other entities, some of which may be our competitors, which may draw time and resources from our programs. The third parties with which we may contract might not be diligent, careful or timely in conducting our preclinical studies or clinical trials, resulting in the preclinical studies or clinical trials being delayed or unsuccessful. If we cannot contract with acceptable third parties on commercially reasonable terms, or at all, or if these third parties do not carry out their contractual duties, satisfy legal and regulatory requirements for the conduct of preclinical studies or clinical trials or meet expected deadlines, our clinical development programs could be delayed or fail, or could be otherwise adversely affected. In all events, we will be responsible for ensuring that each of our preclinical studies and clinical trials are conducted in accordance with the general investigational plan and protocols for the trial. The FDA may require preclinical studies to be conducted in accordance with good laboratory practices and clinical trials to be conducted in accordance with good clinical practices, including for designing, conducting, recording and reporting the results of preclinical studies and clinical trials to ensure

that data and reported results are credible and accurate and that the rights, integrity and confidentiality of clinical trial participants are protected. Our reliance on third parties that we do not control will not relieve us of these responsibilities and requirements. Any adverse development or delay in our clinical trials could have a material and adverse impact on our commercial prospects and may impair our ability to generate revenue.

We are working closely with our third-party clinical investigators, clinical CROs, clinical data management organizations and clinical consultants, preclinical CROs and other vendors of preclinical materials and services to mitigate potential disruptions and delays in our clinical trial for ATRC-101 and our preclinical studies due to COVID-19. However, COVID-19 may lead to significant disruptions or material delays in our preclinical studies and our clinical trial, which would adversely impact our business, financial condition, results of operations and commercial prospects.

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

Human clinical trials are expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. Because our current and potential future product candidates are based on new technologies and discovery approaches, we expect that they will require extensive research and development and have substantial manufacturing and processing costs. In addition, costs to treat patients and to treat potential side effects that may result from our product candidates may be significant. Accordingly, our clinical trial costs are likely to be high and could have a material and adverse effect on our business, financial condition, results of operations and prospects.

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

We may not be able to initiate or continue clinical trials for our current or potential future product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or other regulatory authorities. In particular, we initiated a Phase 1b clinical trial for ATRC-101 in patients with a limited number of tumor types. We cannot predict how difficult it will be to enroll patients for trials in these indications. We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons. The enrollment of patients depends on many factors, including:

- the severity of the disease under investigation;
- the patient eligibility criteria defined in the clinical trial protocol;
- the size of the patient population required for analysis of the trial's primary endpoints;
- the proximity and availability of clinical trial sites for prospective patients;
- the patient referral practices of physicians;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- clinicians' and patients' perceptions as to the potential advantages of the product candidate being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating;
- our ability to obtain and maintain patient consents; and
- the risk that patients enrolled in clinical trials will drop out of the trials before completion.

In our clinical trial for ATRC-101, we have experienced delays due to COVID-19 in initiating sites, achieving patient compliance with study-related procedures, and enrolling patients during the second and third quarters of fiscal 2020. We are working closely with our current and potential clinical trial sites to mitigate any potential disruptions and delays. However, COVID-19 is likely to impact our ability to initiate additional clinical trial sites quickly, and may lead to significant disruptions or material delays in our ability to enroll patients, which could adversely impact the cost, timing, or outcome of our clinical trial for ATRC-101 and our ability to advance the development of ATRC-101.

In addition, our future clinical trials will compete with other clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition will reduce the number and types of patients available to us, because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors. Since the number of qualified clinical investigators is limited, we expect to conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the

number of patients who are available for our clinical trials at such clinical trial sites. Additionally, because some of our clinical trials will be in patients with advanced solid tumors, the patients are typically in the late stages of the disease and may experience disease progression or adverse events independent from our product candidates, making them unevaluable for purposes of the trial and requiring additional enrollment. Delays in patient enrollment may result in increased costs or may affect the timing or outcome of the planned clinical trials, which could prevent completion of these trials and adversely affect our ability to advance the development of our product candidates.

We may not be able to conduct, or contract others to conduct, animal testing in the future, which could harm our research and development activities.

Certain laws and regulations relating to drug development require us to test our product candidates on animals before initiating clinical trials involving humans. Animal testing activities have been the subject of controversy and adverse publicity. Animal rights groups and other organizations and individuals have attempted to stop animal testing activities by pressing for legislation and regulation in these areas and by disrupting these activities through protests and other means. To the extent the activities of these groups are successful, our research and development activities may be interrupted or delayed.

Because we may rely on third parties for manufacturing and supply of our product candidates, some of which are or may be sole source vendors, for preclinical and clinical development materials and commercial supplies, our supply may become limited or interrupted or may not be of satisfactory quantity or quality.*

We currently rely on third-party contract manufacturers for our preclinical and future clinical trial product materials and supplies. We do not produce any meaningful quantity of our product candidates for preclinical and clinical development, and we do not currently own manufacturing facilities for producing such supplies. Furthermore, some of our manufacturers represent our sole source of supplies of preclinical and future clinical development materials, including our source for the manufacture of ATRC-101. We cannot assure you that our preclinical or future clinical development product supplies and commercial supplies will not be limited or interrupted, especially with respect to our sole source third-party manufacturing and supply partners, or will be of satisfactory quality or continue to be available at acceptable prices. In particular, any replacement of our manufacturers could require significant effort and expertise because there may be a limited number of qualified replacements. For our current and future sole source third-party manufacturing and supply partners, we may be unable to negotiate binding agreements with them or find replacement manufacturers to support our preclinical and future clinical activities at commercially reasonable terms in the event that their services to us becomes interrupted for any reason. We do not currently have arrangements in place for a redundant or second-source supply for our sole source vendors in the event they cease to provide their products or services to us or do not timely provide sufficient quantities to us. Establishing additional or replacement sole source vendors, if required, may not be accomplished quickly. Any delays, whether due to COVID-19 or otherwise, resulting from manufacturing or supply interruptions associated with our reliance on third-party manufacturing and supply partners, including those that are sole source, could impede, delay, limit or prevent our drug development efforts, which could harm our business, result of operations, financial condition and prospects.

We are working closely with our third-party manufacturers to mitigate potential disruptions or delays to the supply of our preclinical, clinical, and commercial materials due to COVID-19. However, COVID-19 may lead to significant disruptions or material delays in our ability to receive these materials, and our ability to engage new third-party manufacturers, which could adversely impact our business, financial condition and results of operations.

The manufacturing process for a product candidate is subject to FDA and other regulatory authority review. Suppliers and manufacturers must meet applicable manufacturing requirements and undergo rigorous facility and process validation tests required by regulatory authorities in order to comply with regulatory standards, such as current Good Manufacturing Practices, or cGMP. In the event that any of our manufacturers fails to comply with such requirements or to perform its obligations to us in relation to quality, timing or otherwise, or if our supply of components or other materials becomes limited or interrupted for other reasons, we may be forced to manufacture the materials ourselves, for which we currently do not have the capabilities or resources, or enter into an agreement with another third party, which we may not be able to do on reasonable terms, or at all. In some cases, the technical skills or technology required to manufacture our current and future product candidates may be unique or proprietary to the original

manufacturer and we may have difficulty transferring such skills or technology to another third party and a feasible alternative may not exist. These factors would increase our reliance on such manufacturer or require us to obtain a license from such manufacturer in order to have another third party manufacture our product candidates. If we are required to change manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer could negatively affect our ability to develop product candidates in a timely manner or within budget.

We also expect to rely on third-party manufacturers if we receive regulatory approval for any product candidate. We have existing, and may enter into future, manufacturing arrangements with third parties. We will depend on these third parties to perform their obligations in a timely manner consistent with contractual and regulatory requirements, including those related to quality control and assurance. If we are unable to obtain or maintain third-party manufacturing for any product candidate, or to do so on commercially reasonable terms, we may not be able to develop and commercialize our product candidates successfully. Our or a third party's failure to execute on our manufacturing requirements and comply with cGMP could adversely affect our business in a number of ways, including:

- an inability to initiate or continue clinical trials of product candidates under development;
- delay in submitting regulatory applications, or receiving regulatory approvals, for product candidates;
- loss of the cooperation of a potential future partner;
- subjecting third-party manufacturing facilities or our potential future manufacturing facilities to additional inspections by regulatory authorities;
- requirements to cease distribution or to recall batches of product candidates; and
- in the event of approval to market and commercialize a product candidate, an inability to meet commercial demands for our products.

Our third-party manufacturers may be unable to successfully scale manufacturing of ATRC-101 or potential future product candidates in sufficient quality and quantity, which would delay or prevent us from developing product candidates and commercializing approved products, if any.

In order to conduct clinical trials for ATRC-101 as well as any potential future product candidates, we will need to manufacture large quantities of these product candidates. We may continue to and currently expect to use third parties for our manufacturing needs. Our manufacturing partners may be unable to successfully increase the manufacturing capacity for any current or potential future product candidate in a timely or cost-effective manner, or at all. In addition, quality issues may arise during scale-up activities. If our manufacturing partners are unable to successfully scale the manufacture of any current or potential future product candidate in sufficient quality and quantity, the development, testing and clinical trials of that product candidate may be delayed or infeasible, and regulatory approval or commercial launch of any potential resulting product may be delayed or not obtained, which could significantly harm our business.

If the market opportunities for our current and potential future product candidates, including ATRC-101, are smaller than we believe they are, our future product revenues may be adversely affected and our business may suffer.

Our understanding of the number of people who suffer from certain types of cancers and tumors that may be able to be treated with antibodies that have been and may in the future be identified by our discovery platform, including ATRC-101, is based on estimates. These estimates may prove to be incorrect, and new studies may reduce the estimated incidence or prevalence of these diseases. The number of patients in the United States or elsewhere may turn out to be lower than expected, may not be otherwise amenable to treatment with our current or potential future product candidates or patients may become increasingly difficult to identify and access, all of which would adversely affect our business prospects and financial condition. In particular, the treatable population for ATRC-101 may further be reduced if our estimates of addressable populations are erroneous or sub-populations of patients do not derive benefit from ATRC-101.

Further, there are several factors that could contribute to making the actual number of patients who receive our current or potential future product candidates less than the potentially addressable market. These include the lack of widespread availability of, and limited reimbursement for, new therapies in many underdeveloped markets.

We face competition from entities that have developed or may develop product candidates for the treatment of the diseases that we may target, including companies developing novel treatments and technology platforms. If these companies develop technologies or product candidates more rapidly than we do, or if their technologies or product candidates are more effective, our ability to develop and successfully commercialize product candidates may be adversely affected.

The development and commercialization of drugs and therapeutic biologics is highly competitive. We compete with a variety of large pharmaceutical companies, multinational biopharmaceutical companies, other biopharmaceutical companies and specialized biotechnology companies, as well as technology being developed at universities and other research institutions. Our competitors are often larger and better funded than we are. Our competitors have developed, are developing or will develop product candidates and processes competitive with ours. Competitive therapeutic treatments include those that have already been approved and accepted by the medical community and any new treatments that are currently in development or that enter the market. We believe that a significant number of products are currently under development, and may become commercially available in the future, for the treatment of conditions for which we may try to develop product candidates. There is intense and rapidly evolving competition in the biotechnology, biopharmaceutical and antibody and immuno-oncology fields. We believe that while our discovery platform, its associated intellectual property, the characteristics of ATRC-101 and potential future product candidates and our scientific and technical know-how together give us a competitive advantage in this space, competition from many sources remains.

We are aware of a number of companies that are developing antibodies for the treatment of cancer. Many of these companies are well-capitalized and, in contrast to us, have significant clinical experience, and may include our future partners. In addition, these companies compete with us in recruiting scientific and managerial talent. Our success will partially depend on our ability to obtain, maintain, enforce and defend patents and other intellectual property rights with respect to antibodies that are safer and more effective than competing products. Our commercial opportunity and success will be reduced or eliminated if competing products that are safer, more effective, or less expensive than the antibodies we develop are or become available.

We expect to compete with antibody, biologics and other therapeutic platforms and development companies, including, but not limited to, companies such as Adaptive Biotechnologies Corporation, AIMM Therapeutics B.V., Neurimmune Holding AG, OncoResponse, Inc., and Vir Biotechnology, Inc. In addition, we expect to compete with large, multinational pharmaceutical companies that discover, develop and commercialize antibodies and other therapeutics for use in treating cancer such as AstraZeneca plc, Bristol-Myers Squibb Company, Genentech, Inc. and Merck & Co., Inc. If ATRC-101 or potential future product candidates are eventually approved, they will compete with a range of treatments that are either in development or currently marketed. For example, we expect that ATRC-101 and our potential future product candidates may compete against traditional cancer therapies, such as chemotherapy, as well as cell-based treatments for cancer, such as CAR-T therapies.

Many of our competitors have significantly greater financial, technical, manufacturing, marketing, sales and supply resources or experience than we do. If we successfully obtain approval for any product candidate, we will face competition based on many different factors, including the safety and effectiveness of our products, the ease with which our products can be administered, the timing and scope of regulatory approvals for these products, the availability and cost of manufacturing, marketing and sales capabilities, price, reimbursement coverage and patent position. Competing products could present superior treatment alternatives, including by being more effective, safer, less expensive or marketed and sold more effectively than any products we may develop. Competitive products may make any product we develop obsolete or noncompetitive before we recover the expense of developing and commercializing such product. Such competitors could also recruit our employees, which could negatively impact our level of expertise and our ability to execute our business plan.

Any inability to attract and retain qualified key management, technical personnel and employees would impair our ability to implement our business plan.*

Our success largely depends on the continued service of key management, advisors and other specialized personnel, including John A. Orwin, our president and chief executive officer, and Tito A. Serafini, our chief strategy

officer and founder. We have a written employment agreement with each of Mr. Orwin and Dr. Serafini. The loss of one or more members of our executive team, management team or other key employees or advisors could delay our research and development programs and have a material and adverse effect on our business, financial condition, results of operations and prospects.

The relationships that our key managers have cultivated within our industry make us particularly dependent upon their continued employment with us. We are dependent on the continued service of our technical personnel because of the highly technical nature of our product candidates and technologies and the specialized nature of the regulatory approval process. Because our management team and key employees are not obligated to provide us with continued service, they could terminate their employment with us at any time without penalty. Our future success will depend in large part on our continued ability to attract and retain other highly qualified scientific, technical and management personnel, as well as personnel with expertise in clinical testing, manufacturing, governmental regulation and commercialization. We face competition for personnel from other companies, universities, public and private research institutions, government entities and other organizations.

As of September 30, 2020, we had 128 full-time employees. Our focus on the development of ATRC-101 and potential future product candidates will require adequate staffing. We may need to hire and retain new employees to execute our future clinical development and manufacturing plans. We cannot provide assurance that we will be able to hire or retain adequate staffing levels to develop our current and potential future product candidates or run our operations or to accomplish all of our objectives.

We may experience difficulties in managing our growth and expanding our operations.

We have limited experience in product development. As our current and potential future product candidates enter and advance through preclinical studies and any clinical trials, we will need to expand our development, regulatory and manufacturing capabilities or contract with other organizations to provide these capabilities for us. We may also experience difficulties in the discovery and development of new potential future product candidates using our discovery platform if we are unable to meet demand as we grow our operations. In the future, we also expect to have to manage additional relationships with collaborators, suppliers and other organizations. Our ability to manage our operations and future growth will require us to continue to improve our operational, financial and management controls, reporting systems and procedures and secure adequate facilities for our operational needs. We may not be able to implement improvements to our management information and control systems in an efficient or timely manner and may discover deficiencies in existing systems and controls.

If any of our product candidates is approved for marketing and commercialization in the future and we are unable to develop sales, marketing and distribution capabilities on our own or enter into agreements with third parties to perform these functions on acceptable terms, we will be unable to successfully commercialize any such future products.

We currently have no sales, marketing or distribution capabilities or experience. We will need to develop internal sales, marketing and distribution capabilities to commercialize each current and potential future product candidate that gains FDA approval, which would be expensive and time-consuming, or enter into partnerships with third parties to perform these services. If we decide to market any approved products directly, we will need to commit significant financial and managerial resources to develop a marketing and sales force with technical expertise and supporting distribution, administration and compliance capabilities. If we rely on third parties with such capabilities to market any approved products or decide to co-promote products with partners, we will need to establish and maintain marketing and distribution arrangements with third parties, and there can be no assurance that we will be able to enter into such arrangements on acceptable terms or at all. In entering into third-party marketing or distribution arrangements, any revenue we receive will depend upon the efforts of the third parties and we cannot assure you that such third parties will establish adequate sales and distribution capabilities or be successful in gaining market acceptance for any approved product. If we are not successful in commercializing any product approved in the future, either on our own or through third parties, our business and results of operations could be materially and adversely affected.

Our future growth may depend, in part, on our ability to operate in foreign markets, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future growth may depend, in part, on our ability to develop and commercialize product candidates in foreign markets for which we may rely on partnership with third parties. We will not be permitted to market or promote any product candidate before we receive regulatory approval from the applicable regulatory authority in a foreign market, and we may never receive such regulatory approval for any product candidate. To obtain separate regulatory approval in foreign countries, we generally must comply with numerous and varying regulatory requirements of such countries regarding safety and efficacy and governing, among other things, clinical trials and commercial sales, pricing and distribution of a product candidate, and we cannot predict success in these jurisdictions. If we obtain approval of any of our current or potential future product candidates and ultimately commercialize any such product candidate in foreign markets, we would be subject to risks and uncertainties, including the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements and the reduced protection of intellectual property rights in some foreign countries.

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

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

Our business entails a significant risk of product liability, and our inability to obtain sufficient insurance coverage could have a material and adverse effect on our business, financial condition, results of operations and prospects.

As we move into conducting clinical trials of ATRC-101 or potential future product candidates, we will be exposed to significant product liability risks inherent in the development, testing, manufacturing and marketing of antibody treatments. Product liability claims could delay or prevent completion of our development programs. If we succeed in marketing products, such claims could result in an FDA investigation of the safety and effectiveness of our products, our manufacturing processes and facilities or our marketing programs and potentially a recall of our products or more serious enforcement action, limitations on the approved indications for which they may be used or suspension or withdrawal of approvals. Regardless of the merits or eventual outcome, liability claims may also result in decreased demand for our products, injury to our reputation, costs to defend the related litigation, a diversion of management's time and our resources, substantial monetary awards to trial participants or patients and a decline in our stock price. Any insurance we have or may obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, our partners or we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have a material and adverse effect on our business, financial condition, results of operations and prospects.

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

We are exposed to the risk of fraud or other misconduct by our employees, principal investigators, consultants and commercial partners. Misconduct by employees could include intentional failures to comply with FDA regulations, provide accurate information to the FDA, comply with manufacturing standards we may establish, comply with federal and state healthcare fraud and abuse laws and regulations, report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Such misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. For example, individuals conducting the non-interventional clinical studies that we sponsor through which we obtain antibodies for development into potential antibody-based therapeutics may violate applicable laws and regulations regarding patients' personal data. It is not always possible to identify and deter misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a material and adverse effect on our business and financial condition, including the imposition of significant criminal, civil, and administrative fines or other sanctions, such as monetary penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in government-funded healthcare programs, such as Medicare and Medicaid, integrity obligations, reputational harm and the curtailment or restructuring of our operations.

Failure to comply with health and data protection laws and regulations could lead to government enforcement actions (which could include civil or criminal penalties), private litigation or adverse publicity and could negatively affect our operating results and business.

We and our current and potential collaborators may be subject to federal, state and foreign data protection laws and regulations (*i.e.*, laws and regulations that address privacy and data security). In the United States, numerous federal and state laws and regulations, including federal health information privacy laws (*e.g.*, the Health Insurance Portability and Accountability Act, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH), state data breach notification laws, state health information privacy laws and federal and state consumer protection laws (*e.g.*, Section 5 of the Federal Trade Commission Act), that govern the collection, use, disclosure and protection of health-related and other personal information could apply to our operations or the operations of our collaborators. In addition, we may obtain health information from third parties (including research institutions from which we obtain clinical trial data) that are subject to privacy and security requirements under the HIPAA, as amended by HITECH, or other privacy and data security laws. Depending on the facts and circumstances, we could be subject to criminal penalties if we knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA.

International data protection laws, including Regulation 2016/679, known as the General Data Protection Regulation (GDPR) may also apply to health-related and other personal information obtained outside of the United States. The GDPR went into effect on May 25, 2018. The GDPR introduced new data protection requirements in the European Union, as well as potential fines for noncompliant companies of up to the greater of e20 million or 4% of annual global revenue. The regulation imposes numerous new requirements for the collection, use and disclosure of personal information, including more stringent requirements relating to consent and the information that must be shared with data subjects about how their personal information is used, the obligation to notify regulators and affected individuals of personal data breaches, extensive new internal privacy governance obligations and obligations to honor expanded rights of individuals in relation to their personal information (*e.g.*, the right to access, correct and delete their data). In addition, the GDPR includes restrictions on cross-border data transfers. The GDPR will increase our responsibility and liability in relation to personal data that we process where such processing is subject to the GDPR, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, including as implemented by individual countries. Further, the United Kingdom's vote in favor of exiting the EU, often referred to as

Brexit, has created uncertainty with regard to data protection regulation in the United Kingdom. In particular, it is unclear how data transfers to and from the United Kingdom will be regulated.

In addition, California recently enacted the California Consumer Privacy Act (CCPA), which creates new individual privacy rights for California consumers (as defined in the law) and places increased privacy and security obligations on entities handling personal data of consumers or households. The CCPA will require covered companies to provide new disclosure to consumers about such companies' data collection, use and sharing practices, provide such consumers new ways to opt-out of certain sales or transfers of personal information, and provide consumers with additional causes of action. The CCPA goes into effect on January 1, 2020, and the California Attorney General may bring enforcement actions for violations beginning July 1, 2020. The CCPA was amended on September 23, 2018, and it remains unclear what, if any, further modifications will be made to this legislation or how it will be interpreted. As currently written, the CCPA may impact our business activities and exemplifies the vulnerability of our business to the evolving regulatory environment related to personal data and protected health information.

Compliance with U.S. and international data protection laws and regulations could require us to take on more onerous obligations in our contracts, restrict our ability to collect, use and disclose data, or in some cases, impact our ability to operate in certain jurisdictions. Failure to comply with U.S. and international data protection laws and regulations could result in government enforcement actions (which could include civil or criminal penalties), private litigation or adverse publicity and could negatively affect our operating results and business. Moreover, clinical trial subjects about whom we or our potential collaborators obtain information, as well as the providers who share this information with us, may contractually limit our ability to use and disclose the information. Claims that we have violated individuals' privacy rights, failed to comply with data protection laws, or breached our contractual obligations, even if we are not found liable, could be expensive and time consuming to defend and could result in adverse publicity that could harm our business.

If we experience security or data privacy breaches or other unauthorized or improper access to, use of, or destruction of our proprietary or confidential data, employee data or personal data, we may face costs, significant liabilities, harm to our brand and business disruption.

In connection with our discovery platform and efforts, we may collect and use a variety of personal data, such as name, mailing address, email addresses, phone number and clinical trial information. Although we have extensive measures in place to prevent the sharing and loss of patient data in our sample collection process associated with our discovery platform, any failure to prevent or mitigate security breaches or improper access to, use of, or disclosure of our clinical data or patients' personal data could result in significant liability under state (*e.g.*, state breach notification laws), federal (*e.g.*, HIPAA, as amended by HITECH), and international law (*e.g.*, the GDPR). Any failure to prevent or mitigate security breaches or improper access to, use of, or disclosure of our clinical data or patients' personal data may cause a material adverse impact to our reputation, affect our ability to conduct new studies and potentially disrupt our business. We may also rely on third-party service providers to host or otherwise process some of our data and that of users, and any failure by such third party to prevent or mitigate security breaches or improper access to or disclosure of such information could have similarly adverse consequences for us. If we are unable to prevent or mitigate the impact of such security or data privacy breaches, we could be exposed to litigation and governmental investigations, which could lead to a potential disruption to our business.

We depend on sophisticated information technology systems to operate our business and a cyber-attack or other breach of these systems could have a material adverse effect on our business.

We rely on information technology systems that we or our third-party vendors operate to process, transmit and store electronic information in our day-to-day operations. The size and complexity of our information technology systems makes them vulnerable to a cyber-attack, malicious intrusion, breakdown, destruction, loss of data privacy or other significant disruption. A successful attack could result in the theft or destruction of intellectual property, data, or other misappropriation of assets, or otherwise compromise our confidential or proprietary information and disrupt our operations. Cyber-attacks are becoming more sophisticated and frequent. We have invested in our systems and the protection and recoverability of our data to reduce the risk of an intrusion or interruption, and we monitor and test our systems on an ongoing basis for any current or potential threats. There can be no assurance that these measures and

efforts will prevent future interruptions or breakdowns. If we or our third-party vendors fail to maintain or protect our information technology systems and data integrity effectively or fail to anticipate, plan for or manage significant disruptions to these systems, we or our third-party vendors could have difficulty preventing, detecting and controlling such cyber-attacks and any such attacks could result in losses described above as well as disputes with physicians, patients and our partners, regulatory sanctions or penalties, increases in operating expenses, expenses or lost revenues or other adverse consequences, any of which could have a material adverse effect on our business, results of operations, financial condition, prospects and cash flows.

Our information technology systems could face serious disruptions that could adversely affect our business.

Our information technology and other internal infrastructure systems, including corporate firewalls, servers, leased lines and connection to the internet, face the risk of systemic failure that could disrupt our operations. A significant disruption in the availability of our information technology and other internal infrastructure systems could cause interruptions and delays in our research and development work.

If we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.

Our research, development and manufacturing involves the use of hazardous materials and various chemicals. We maintain quantities of various flammable and toxic chemicals in our facilities that are required for our research, development and manufacturing activities. We are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of these hazardous materials. We believe our procedures for storing, handling and disposing of these materials in our facilities comply with the relevant guidelines of the state of California and the Occupational Safety and Health Administration of the U.S. Department of Labor. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards mandated by applicable regulations, the risk of accidental contamination or injury from these materials cannot be eliminated. If an accident occurs, we could be held liable for resulting damages, which could be substantial. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of animals and biohazardous materials. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of these materials, this insurance may not provide adequate coverage against potential liabilities. Although we have some environmental liability insurance covering certain of our facilities, we may not maintain adequate insurance for all environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological or hazardous materials. Additional federal, state and local laws and regulations affecting our operations may be adopted in the future. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

Our current operations are concentrated in one location, and we or the third parties upon whom we depend may be adversely affected by natural or other disasters and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Our current operations are concentrated in the San Francisco Bay Area. Any unplanned event, such as flood, fire, explosion, extreme weather condition, medical epidemics, power shortage, telecommunication failure or other natural or manmade accidents or incidents that result in us being unable to fully utilize our facilities or the manufacturing facilities of our third-party contract manufacturers, or lose our repository of blood-based and other valuable laboratory samples, may have a material and adverse effect on our ability to operate our business, particularly on a daily basis, and have significant negative consequences on our financial and operating conditions. Loss of access to these facilities may result in increased costs, delays in the development of our product candidates or interruption of our business operations. Natural disasters such as earthquakes or wildfires, both of which are prevalent in Northern California, floods or tsunamis could further disrupt our operations, and have a material negative impact on our business, financial condition, results of operations and prospects. If a natural disaster, power outage or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as our research facilities or the manufacturing facilities of our third-party contract manufacturers, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible, for us to continue our business for a substantial period of time. The disaster

recovery and business continuity plans we have in place may prove inadequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity plans, which could have a material adverse effect on our business. As part of our risk management policy, we maintain insurance coverage at levels that we believe are appropriate for our business. However, in the event of an accident or incident at these facilities, we cannot assure you that the amounts of insurance will be sufficient to satisfy any damages and losses. If our facilities, or the manufacturing facilities of our third-party contract manufacturers, are unable to operate because of an accident or incident or for any other reason, even for a short period of time, any or all of our research and development programs may be harmed. Any business interruption may have a material and adverse effect on our business and financial condition.

Risks Related to Our Intellectual Property

If we are unable to obtain or protect intellectual property rights related to our technology and current or future product candidates, or if our intellectual property rights are inadequate, we may not be able to compete effectively.

Our success depends in part on our ability to obtain and maintain protection for our owned and in-licensed intellectual property rights and proprietary technology. We rely on patents and other forms of intellectual property rights, including in-licenses of intellectual property rights and biologic materials of others, to protect our current or future discovery platform, product candidates, methods used to manufacture our current or future product candidates, and methods for treating patients using our current or future product candidates.

We in-license exclusive rights, including patents and patent applications relating to our discovery platform, from the Board of Trustees of the Leland Stanford Junior University, or Stanford University. Patent applications for this in-licensed technology are still pending before the U.S. Patent and Trademark Office and other national patent offices. There is no guarantee that such patent applications will issue as patents, nor any guarantee that issued patents will provide adequate protection for the in-licensed technology or any meaningful competitive advantage.

We also own several patents and applications on our own technology relating to our discovery platform. There is no guarantee that any patents covering this technology will issue from the patent applications we own, or, if they do, that the issued claims will provide adequate protection for our discovery platform or any meaningful competitive advantage.

We own pending nonprovisional patent applications in connection with ATRC-101 and related antibody variants. However, there is no guarantee that any current or future patent applications will result in the issuance of patents that will effectively protect ATRC-101 or other product candidates or will effectively prevent others from commercializing competitive products.

We may also file provisional patent applications in the United States related to our product candidates. A provisional patent application is not eligible to become an issued patent until, among other things, we file a non-provisional patent application within 12 months of the filing date of the provisional patent application. If we do not timely file non-provisional patent applications for our potential future provisional patent applications, we may lose our priority date with respect to our provisional patent applications and any patent protection on the inventions disclosed in our provisional patent applications.

The patent prosecution process is expensive, complex and time-consuming. Patent license negotiations also can be complex and protracted, with uncertain results. We may not be able to file, prosecute, maintain, enforce or license all necessary or desirable patents and patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. The patent applications that we own or in-license may fail to result in issued patents, and, even if they do issue as patents, such patents may not cover our current or future technologies or product candidates in the United States or in other countries or provide sufficient protection from competitors. In addition, the coverage claimed in a patent application can be significantly reduced before the patent is issued and its scope can be reinterpreted after issuance. Accordingly, we also rely on our ability to preserve our trade secrets, to prevent third parties from infringing,

misappropriating or violating our proprietary rights and to operate without infringing, misappropriating, or violating the proprietary rights of others.

Further, although we make reasonable efforts to ensure patentability of our inventions, we cannot guarantee that all of the potentially relevant prior art relating to our owned or in-licensed patents and patent applications has been found. For example, publications of discoveries in scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, and in some cases not at all. Additionally, pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our discovery platform, our product candidates, or the use of our technologies. We thus cannot know with certainty whether we or our licensors were the first to make the inventions claimed in our owned or in-licensed patents or pending applications, or that we or our licensors were the first to file for patent protection of such inventions. There is no assurance that all potentially relevant prior art relating to our owned or in-licensed patents and patent applications has been found. For this reason, and because there is no guarantee that any prior art search is absolutely correct and comprehensive, we may be unaware of prior art that could be used to invalidate an issued patent or to prevent our owned or in-licensed pending patent applications from issuing as patents. Invalidation of any of our patent rights, including in-licensed patent rights, could materially harm our business.

Moreover, the patent positions of biopharmaceutical companies are generally uncertain because they may involve complex legal and factual considerations that have, in recent years, been the subject of legal development and change. As a result, the issuance, scope, validity, enforceability and commercial value of our pending patent rights is uncertain. The standards applied by the United States Patent and Trademark Office, or USPTO, and foreign patent offices in granting patents are not always certain and moreover, are not always applied uniformly or predictably. For example, there is no uniform worldwide policy regarding patentable subject matter or the scope of claims allowable in patents. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our owned or in-licensed patents or narrow the scope of our patent protection.

Even if patents do successfully issue and even if such patents cover our current or any future technologies or product candidates, third parties may challenge their validity, enforceability or scope, which may result in such patents being narrowed, invalidated, or held unenforceable. Any successful challenge to these patents or any other patents owned by or licensed to us could deprive us of rights necessary for the successful commercialization of any current or future technologies or product candidates that we may develop. Likewise, if patent applications we own or have in-licensed with respect to our development programs and current or future technologies or product candidates fail to issue, if their breadth or strength is threatened, or if they fail to provide meaningful exclusivity, other companies could be dissuaded from collaborating with us to develop current or future technologies or product candidates. Lack of valid and enforceable patent protection could threaten our ability to commercialize current or future products and could prevent us from maintaining exclusivity with respect to the invention or feature claimed in the patent applications. Any failure to obtain or any loss of patent protection could have a material adverse impact on our business and ability to achieve profitability. We may be unable to prevent competitors from entering the market with a product that is similar to or the same as ATRC-101 or future product candidates.

The filing of a patent application or the issuance of a patent is not conclusive as to its ownership, inventorship, scope, patentability, validity or enforceability. Issued patents and patent applications may be challenged in the courts and in the patent office in the United States and abroad. For example, our applications or applications filed by our licensors may be challenged through third-party submissions, opposition or derivation proceedings. By further example, our issued patents or the issued patents we in-license may be challenged through reexamination, *inter partes* review or post-grant review proceedings before the patent office, or in declaratory judgment actions or counterclaims. An adverse determination in any such submission, proceeding or litigation could prevent the issuance of, reduce the scope of, invalidate or render unenforceable our owned or in-licensed patent rights; limit our ability to stop others from using or commercializing similar or identical platforms and products; allow third parties to compete directly with us without payment to us; or result in our inability to manufacture or commercialize products without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by our owned or in-licensed patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future platforms or product candidates. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Moreover, some of our owned and in-licensed patents and patent applications are or may in the future be co-owned with third parties. If we are unable to obtain an exclusive license to any such third party co-owners' interest in such patents or patent application, such co-owners may be able to license their rights to other third-parties, including our competitors, and our competitors could market competing products and technology. We may need the cooperation of any such co-owners of our patents to enforce such patents against third parties, and such cooperation may not be provided to us. Any of the foregoing could have a material adverse effect on our competitive position, business prospects and financial conditions.

Our in-licensed patent rights may be subject to a reservation of rights by one or more third parties. For example, we in-license certain patent rights from Stanford University, which co-owns rights with a governmental entity. As a result, the U.S. government may have certain rights, including so-called march-in rights, to such patent rights and any products or technology developed from such patent rights. When new technologies are developed with U.S. government funding, the U.S. government generally obtains certain rights in any resulting patents, including a nonexclusive license authorizing the U.S. government to use the invention for non-commercial purposes. These rights may permit the U.S. government to disclose our confidential information to third parties and to exercise march-in rights to use or to allow third parties to use our licensed technology. The U.S. government can exercise its march-in rights if it determines that action is necessary because we fail to achieve the practical application of government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, our rights in such inventions may be subject to certain requirements to manufacture products embodying such inventions in the United States. Any exercise by the U.S. government of such rights could harm our competitive position, business, financial condition, results of operations and prospects.

If we fail to comply with our obligations under any license, collaboration or other intellectual property-related agreements, we may be required to pay damages and could lose intellectual property rights that may be necessary for developing, commercializing and protecting our current or future technologies or product candidates or we could lose certain rights to grant sublicenses.

We are heavily reliant upon in-licenses to certain patent rights and proprietary technology from third parties that are important or necessary to our discovery platform and development of product candidates. For example, we rely on an intellectual property license from Stanford University for our discovery platform.

Our current license agreements impose, and any future license agreements we enter into are likely to impose, various development, commercialization, funding, milestone, royalty, diligence, sublicensing, insurance, patent prosecution and enforcement or other obligations on us. If we breach any of these obligations, or use the intellectual property licensed to us in an unauthorized manner, we may be required to pay damages and the licensor may have the right to terminate the license. License termination could result in our inability to develop, manufacture and sell products that are covered by the licensed technology or could enable a competitor to gain access to the licensed technology. In certain circumstances, our licensed patent rights are subject to our reimbursing our licensors for their patent prosecution and maintenance costs. For example, our license agreement with Stanford University requires us to bear the costs of filing and maintaining patent applications.

Furthermore, we may not have the right to control the preparation, filing, prosecution, maintenance, enforcement and defense of patents and patent applications that we license from third parties. For example, pursuant to our license agreement with Stanford University, while we direct and are responsible for the preparation, filing, prosecution and maintenance, and, in certain circumstances, enforcement and defense of the patents and patent applications, all of these actions are subject to Stanford University's final approval. Given Stanford University's right of final approval, we therefore cannot be certain that these patents and patent applications will be prepared, filed, prosecuted, maintained, enforced and defended in a manner consistent with the best interests of our business. If our licensors and future licensors fail to prosecute, maintain, enforce and defend patents we may license, or lose rights to licensed patents or patent applications, our license rights may be reduced or eliminated. In such circumstances, our right to develop and commercialize any of our products or product candidates that is the subject of such licensed rights could be materially adversely affected.

Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing, misappropriating or otherwise violating the licensor's intellectual property rights. In addition, while we cannot currently determine the amount of the royalty obligations we would be required to pay on sales of future products if infringement or misappropriation were found, those amounts could be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, we may be unable to achieve or maintain profitability.

In addition, the agreements under which we currently license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse impact on our business and ability to achieve profitability. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize any affected product candidates, which could have a material adverse effect on our business and financial conditions.

Patent terms may not be able to protect our competitive position for an adequate period of time with respect to our current or future technologies or product candidates.

Patents have a limited lifespan. In the United States, the standard patent term is typically 20 years after filing. Various extensions may be available. Even so, the life of a patent and the protection it affords are limited. As a result, our owned and in-licensed patent portfolio provides us with limited rights that may not last for a sufficient period of time to exclude others from commercializing products similar or identical to ours. For example, given the large amount of time required for the research, development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized.

Extensions of patent term are available, but there is no guarantee that we would succeed in obtaining any particular extension—and no guarantee any such extension would confer patent term for a sufficient period of time to exclude others from commercializing products similar or identical to ours. In the United States, the Drug Price Competition and Patent Term Restoration Act of 1984 permits a patent term extension of up to five years beyond the normal expiration of the patent, which is limited to the approved indication (or any additional indications approved during the period of extension). A patent term extension cannot extend the remaining term of a patent beyond 14 years from the date of product approval; only one patent may be extended; and extension is available for only those claims covering the approved drug, a method for using it, or a method for manufacturing it. The applicable authorities, including the FDA and the USPTO in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. An extension may not be granted or may be limited where there is, for example, a failure to exercise due diligence during the testing phase or regulatory review process, failure to apply within applicable deadlines, failure to apply before expiration of relevant patents, or some other failure to satisfy applicable requirements. If this occurs, our competitors may be able to launch their products earlier by taking advantage of our investment in development and clinical trials along with our clinical and preclinical data. This could have a material adverse effect on our business and ability to achieve profitability.

Changes in U.S. patent law or the patent law of other countries or jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our current or any future technologies or product candidates.

Changes in either the patent laws or interpretation of the patent laws in the United States or elsewhere could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. The United States has enacted and implemented wide-ranging patent reform legislation. On September 16, 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law, which could increase the uncertainties and costs surrounding the prosecution of our owned or in-licensed patent applications and the enforcement or defense of our owned or in-licensed issued patents. 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, redefine prior art, may affect patent litigation and switch the U.S. patent system from a “first-to-invent” system to a “first-to-file” system. Under a first-to-file system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to the patent on an invention regardless of whether another inventor had made the invention earlier. These provisions also allow third-party submission of prior art to the USPTO during patent prosecution and set forth additional procedures to challenge the validity of a patent by the USPTO administered post grant proceedings, including derivation, reexamination, *inter partes* review, post-grant review and interference proceedings. The USPTO developed additional regulations and 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-to-file provisions, became effective on March 16, 2013. Accordingly, it is not clear what, if any, impact the Leahy-Smith Act will have on the operation of our business. The Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our owned or in-licensed patent applications and the enforcement or defense of our issued owned or in-licensed patents, all of which could have a material adverse impact on our business prospects and financial condition.

As referenced above, for example, courts in the U.S. continue to refine the heavily fact-and-circumstance-dependent jurisprudence defining the scope of patent protection available for therapeutic antibodies, narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. This creates uncertainty about our ability to obtain patents in the future and the value of such patents. We cannot provide assurance that future developments in U.S. Congress, the federal courts and the USPTO will not adversely impact our owned or in-licensed patents or patent applications. The laws and regulations governing patents could change in unpredictable ways that could weaken our and our licensors’ ability to obtain new patents or to enforce our existing owned or in-licensed patents and patents that we might obtain or in-license in the future. Similarly, changes in patent law and regulations in other countries or jurisdictions or changes in the governmental bodies that enforce them or changes in how the relevant governmental authority enforces patent laws or regulations may have a material adverse effect on our and our licensors’ ability to obtain new patents or to protect and enforce our owned or in-licensed patents or patents that we may obtain or in-license in the future.

Other companies or organizations may challenge our or our licensors’ patent rights or may assert patent rights that prevent us from developing and commercializing our current or future products.

As the field of antibody-based immunotherapeutics matures, patent applications are being processed by national patent offices around the world. There is uncertainty about which patents will issue, and, if they do, there is uncertainty as to when, to whom, and with what claims. In addition, third parties may attempt to invalidate our or our licensors’ intellectual property rights. Even if such rights are not directly challenged, disputes could lead to the weakening of our or our licensors’ intellectual property rights. Our defense against any attempt by third parties to circumvent or invalidate our intellectual property rights could be costly to us, could require significant time and attention of our management, and could have a material and adverse impact on our profitability, financial condition and prospects or ability to successfully compete.

There are many issued and pending patents that claim aspects of our current or potential future product candidates and modifications that we may need to apply to our current or potential future product candidates. There are also many issued patents that claim antibodies or portions of antibodies that may be relevant for products we wish to develop.

Further, we cannot guarantee that we are aware of all of patents and patent applications potentially relevant to our technology or products. We may not be aware of potentially relevant third-party patents or applications for several reasons. For example, U.S. applications filed before November 29, 2000, and certain U.S. applications filed after that date that will not be filed outside the U.S. remain confidential until patents issue. Patent applications in the United States and elsewhere are published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering our product candidates or platform technologies could have been filed by others without our knowledge. Additionally, pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our platform, our product candidates or the use of our technologies.

Thus, it is possible that one or more third parties will hold patent rights to which we will need a license, which may not be available on reasonable terms or at all. If such third parties refuse to grant us a license to such patent rights on reasonable terms or at all, we may be required to expend significant time and resources to redesign our technology, product candidates or the methods for manufacturing our product candidates, or to develop or license replacement technology, all of which may not be commercially or technically feasible. In such case, we may not be able to market such technology or product candidates and may not be able to perform research and development or other activities covered by these patents. This could have a material adverse effect on our ability to commercialize our product candidates and our business and financial condition.

We may not be able to protect our intellectual property rights throughout the world, which could negatively impact our business.

Filing, prosecuting and defending patents on current or future technologies or product candidates in all countries throughout the world would be prohibitively expensive. Competitors or other third parties may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export infringing products to territories where we have patent protection or licenses 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.

Additionally, the laws of some foreign jurisdictions do not protect intellectual property rights to the same extent as the laws in the United States. Many companies have encountered significant difficulties in protecting and defending such rights in such jurisdictions. The legal systems of certain countries, including certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biotechnology, which could make it difficult for us to stop the infringement of our owned and in-licensed patents or the marketing of competing products in violation of our intellectual property and proprietary rights generally. Proceedings to enforce our owned or in-licensed intellectual property and proprietary rights in foreign jurisdictions could result in substantial costs and could divert our efforts and attention from other aspects of our business. Such proceedings could also put our owned or in-licensed patents at risk of being invalidated or interpreted narrowly, could put our owned or in-licensed patent applications at risk of not issuing, and could provoke third parties to assert claims against us or our licensors. We or our licensors may not prevail in any lawsuits or other adversarial proceedings that we or our licensors initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our and our licensors' efforts to enforce such intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or in-license.

Further, many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of its patents. If we or any of our licensors are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position in the relevant jurisdiction may be impaired and our business prospects may be materially adversely affected.

Third parties may initiate legal proceedings alleging that we are infringing, misappropriating or violating their intellectual property rights, the outcome of which would be uncertain and could have a material adverse impact on the success of our business.

Our commercial success depends, in part, upon our ability or the ability of our potential future collaborators to develop, manufacture, market and sell our current or any future product candidates and to use our proprietary technologies without infringing, misappropriating or violating the proprietary and intellectual property rights of third parties. The biotechnology and pharmaceutical industries are characterized by extensive and complex litigation regarding patents and other intellectual property rights.

We or our licensors, or any future strategic partners, may be party to, or be threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our current or any potential future product candidates and technologies, including derivation, reexamination, *inter partes* review, post-grant review or interference

proceedings before the USPTO and similar proceedings in jurisdictions outside of the United States such as opposition proceedings. In some instances, we may be required to indemnify our licensors for the costs associated with any such adversarial proceedings or litigation. For example, we are obligated under our license agreement with Stanford University to indemnify, hold harmless and defend Stanford University for damages from any claim of any kind arising out of or related to the license agreement with Stanford University. Third parties may assert infringement claims against us, our licensors or our strategic partners based on existing patents or patents that may be granted in the future, regardless of their merit. There is a risk that third parties may choose to engage in litigation or other adversarial proceedings with us, our licensors or our strategic partners to enforce or otherwise assert their patent rights. Even if we believe such claims are without merit, a court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, which could have a material adverse impact on our ability to utilize our discovery platform or to commercialize our current or any future product candidates. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity by presenting clear and convincing evidence of invalidity. There is no assurance that a court of competent jurisdiction, even if presented with evidence we believe to be clear and convincing, would invalidate the claims of any such U.S. patent.

Further, we cannot guarantee that we will be able to successfully settle or otherwise resolve such adversarial proceedings or litigation. If we are unable to successfully settle future claims on terms acceptable to us, we may be required to engage in or to continue costly, unpredictable and time-consuming litigation and may be prevented from or experience substantial delays in marketing our product candidates. If we, or our licensors, or any future strategic partners are found to infringe, misappropriate or violate a third-party patent or other intellectual property rights, we could be required to pay damages, including treble damages and attorney's fees, if we are found to have willfully infringed. In addition, we, or our licensors, or any future strategic partners may choose to seek, or be required to seek, a license from a third party, which may not be available on commercially reasonable terms, if at all. Even if a license can be obtained on commercially reasonable terms, the rights may be non-exclusive, which could give our competitors access to the same technology or intellectual property rights licensed to us, and we could be required to make substantial licensing and royalty payments. We also could be forced, including by court order, to cease utilizing, developing, manufacturing and commercializing our discovery platform or product candidates deemed to be infringing. We may be forced to redesign current or future technologies or products. Any of the foregoing could have a material adverse effect on our ability to generate revenue or achieve profitability and possibly prevent us from generating revenue sufficient to sustain our operations.

In addition, we or our licensors may find it necessary to pursue claims or to initiate lawsuits to protect or enforce our owned or in-licensed patent or other intellectual property rights. The cost to us in defending or initiating any litigation or other proceeding relating to our owned or in-licensed patent or other intellectual property rights, even if resolved in our favor, could be substantial, and any litigation or other proceeding would divert our management's attention. Such litigation or proceedings could materially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. Some of our competitors may be able to more effectively to sustain the costs of complex patent litigation because they have substantially greater resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could delay our research and development efforts and materially limit our ability to continue our operations. Furthermore, because of the substantial amount of discovery required in connection with certain such proceedings, there is a risk that some of our confidential information could be compromised by disclosure. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, such announcements could have a material adverse effect on the price of our Class A common stock.

If we or our licensors were to initiate legal proceedings against a third party to enforce a patent covering one of our product candidates or our technology, the defendant could counterclaim that such patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, claiming patent-ineligible subject matter, lack of novelty, indefiniteness, lack of written description, non-enablement, anticipation or obviousness. 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 of such invalidity and unenforceability claims is unpredictable. With respect to the

validity question, for example, we cannot be certain that there is no invalidating prior art of which we or our licensors and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we could lose at least part, and perhaps all, of the patent protection for one or more of our product candidates or certain aspects of our platform technology. Such a loss of patent protection could have a material adverse effect on our business, financial condition, results of operations and prospects. Patents and other intellectual property rights also will not protect our product candidates and technologies if competitors or third parties design around such product candidates and technologies without legally infringing, misappropriating or violating our owned or in-licensed patents or other intellectual property rights.

Intellectual property rights of third parties could adversely affect our ability to commercialize our current or future technologies or product candidates, and we might be required to litigate or obtain licenses from third parties to develop or market our current or future technologies or product candidates, which may not be available on commercially reasonable terms or at all.

Because the antibody landscape is still evolving, it is difficult to conclusively assess our freedom to operate without infringing, misappropriating or violating third-party rights. There are numerous companies that have pending patent applications and issued patents broadly covering antibodies generally or covering antibodies directed against the same targets as, or targets similar to, those we are pursuing. Our competitive position may materially suffer if patents issued to third parties or other third-party intellectual property rights cover our current or future technologies product candidates or elements thereof or our manufacture or uses relevant to our development plans. In such cases, we may not be in a position to develop or commercialize current or future technologies, product candidates unless we successfully pursue litigation to nullify or invalidate the third-party intellectual property right concerned, or enter into a license agreement with the intellectual property right holder, if available on commercially reasonable terms. There may be issued patents of which we are not aware, held by third parties that, if found to be valid and enforceable, could be alleged to be infringed by our current or future technologies or product candidates. There also may be pending patent applications of which we are not aware that may result in issued patents, which could be alleged to be infringed by our current or future technologies or product candidates. If such an infringement claim should successfully be brought, we may be required to pay substantial damages or be forced to abandon our current or future technologies or product candidates or to seek a license from any patent holders. No assurances can be given that a license will be available on commercially reasonable terms, if at all.

Third party intellectual property right holders may also actively bring infringement, misappropriation or violation or other claims alleging violations of intellectual property rights against us. We cannot guarantee that we will be able to successfully settle or otherwise resolve such claims. If we are unable to successfully settle future claims on terms acceptable to us, we may be required to engage in or to continue costly, unpredictable and time-consuming litigation and may be prevented from or experience substantial delays in marketing our product candidates. If we fail in any such dispute, in addition to being forced to pay damages, we may be temporarily or permanently prohibited from commercializing any of our current or future technologies or product candidates that are held to be infringing, misappropriating or otherwise violating third-party intellectual property rights. We might, if possible, also be forced to redesign current or future technologies or product candidates so that we no longer infringe, misappropriate or violate the third-party intellectual property rights. Any of these events, even if we were ultimately to prevail, could require us to divert substantial financial and management resources that we would otherwise be able to devote to our business, which could have a material adverse effect on our financial condition and results of operations.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

As referenced above, in addition to seeking patent protection for certain aspects of our current or future technologies and product candidates, we also consider trade secrets, including confidential and unpatented know-how, important to the maintenance of our competitive position. However, trade secrets and know-how can be difficult to protect. We protect and plan to protect trade secrets and confidential and unpatented know-how, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to such knowledge, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and

consultants under which they are obligated to maintain confidentiality and to assign their inventions to us. Despite these efforts, we may not obtain these agreements in all circumstances. Moreover, individuals with whom we have such agreements may not comply with their terms. Any of these parties may breach such agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for any such breaches. We may also become involved in inventorship disputes relating to inventions and patents developed by our employees or consultants under such agreements. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret, or securing title to an employee- or consultant-developed invention if a dispute arises, is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts in the United States and certain foreign jurisdictions disfavor or are unwilling to protect trade secrets. Further, if any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent that competitor from using the technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be materially and adversely harmed.

We may be subject to claims that we or our employees or consultants have wrongfully used or disclosed alleged trade secrets or other proprietary information of our employees' or consultants' former employers or their clients.

Many of our employees or consultants and our licensors' employees or consultants were previously employed at universities or biotechnology or biopharmaceutical companies, including our competitors or potential competitors. We may be subject to claims that one or more of these employees or consultants or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of former employers. Litigation or arbitration may be necessary to defend against these claims. If we fail in defending such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel or may be enjoined from using such intellectual property. Any such proceedings and possible aftermath would likely divert significant resources from our core business, including distracting our technical and management personnel from their normal responsibilities. A loss of key research personnel or their work product could limit our ability to commercialize, or prevent us from commercializing, our current or future technologies or product candidates, which could materially harm our business. Even if we are successful in defending against any such claims, litigation or arbitration could result in substantial costs and could be a distraction to management.

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

Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents or applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our owned and in-licensed patents or applications and any patent rights we may own or in-license in the future. The USPTO and various non-U.S. government patent agencies require compliance with several procedural, documentary, fee payment and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply with these requirements, and we are also dependent on our licensors to take the necessary action to comply with these requirements with respect to our in-licensed intellectual property. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market with similar or identical products or platforms, which could have a material adverse effect on our business prospects and financial condition.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our trademarks or trade names may be challenged, infringed, circumvented, declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we use for name recognition by potential partners or customers in our markets of interest. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be materially adversely affected.

Intellectual property rights do not necessarily address all potential threats to our business.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business. The following examples are illustrative:

- others may be able to make compounds or formulations that are similar to our product candidates, but that are not covered by the claims of any patents that we own, license or control;
- we or any strategic partners might not have been the first to make the inventions covered by the issued patents or pending patent applications that we own, license or control;
- we or our licensors might not have been the first to file patent applications covering certain of our owned and in-licensed inventions;
- others may independently develop the same, similar, or alternative technologies without infringing, misappropriating or violating our owned or in-licensed intellectual property rights;
- it is possible that our owned or in-licensed pending patent applications will not lead to issued patents;
- issued patents that we own, in-license, or control may not provide us with any competitive advantages, or may be narrowed or held invalid or unenforceable, including as a result of legal challenges;
- 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 do not have patent rights, and may then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such trade secrets or know-how; and
- the patents of others may have an adverse effect on our business.

Should any of these events occur, they could have a material adverse impact on our business and financial condition.

Risks Related to Government Regulation

Clinical development includes a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results.

Our only product candidate, ATRC-101, is in early clinical development and its risk of failure is high. It is impossible to predict when or if ATRC-101 or any potential future product candidates will prove effective and safe in humans or will receive regulatory approval. Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete preclinical studies and then conduct extensive clinical trials to demonstrate the safety and efficacy of that product candidate in humans. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the development process. The results of preclinical studies and early clinical trials of any of our current or potential future product candidates may not be predictive of the results of later-stage clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials. A number of companies in the pharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or safety profiles, notwithstanding promising results in earlier trials.

We may experience delays in completing our preclinical studies and initiating or completing clinical trials of ATRC-101 or potential future product candidates. We do not know whether planned preclinical studies and clinical trials will be completed on schedule or at all, or whether planned clinical trials will begin on time, need to be redesigned, enroll patients on time or be completed on schedule, if at all. Our development programs may be delayed for a variety of reasons, including delays related to:

- the FDA or other regulatory authorities requiring us to submit additional data or imposing other requirements before permitting us to initiate a clinical trial;
- obtaining regulatory approval to commence a clinical trial;

- reaching agreement on acceptable terms with prospective 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;
- obtaining institutional review board, or IRB, approval at each clinical trial site;
- recruiting suitable patients to participate in a clinical trial;
- having patients complete a clinical trial or return for post-treatment follow-up;
- clinical trial sites deviating from trial protocol or dropping out of a trial;
- adding new clinical trial sites; or
- manufacturing sufficient quantities of our product candidates for use in clinical trials.

Furthermore, we expect to rely on our CROs and clinical trial sites to ensure the proper and timely conduct of our clinical trials and, while we expect to enter into agreements governing their committed activities, we have limited influence over their actual performance.

We could encounter delays if prescribing physicians encounter unresolved ethical issues associated with enrolling patients in clinical trials of our current or potential future product candidates in lieu of prescribing existing treatments that have established safety and efficacy profiles. Further, a clinical trial may be suspended or terminated by us, our partners, the IRBs of the institutions in which such trials are being conducted, the Data Safety Monitoring Board for such trial or by the FDA or other regulatory authorities due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug or therapeutic biologic, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we experience delays in the completion of, or termination of, any clinical trial of any of our current or potential future product candidates, the commercial prospects of such product candidate will be harmed, and our ability to generate product revenue from such product candidates will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow our product development and approval process and jeopardize our ability to commence product sales and generate revenue. Any of these occurrences may materially and adversely affect our business, financial condition, results of operations and prospects. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our current or potential future product candidates.

We may be unable to obtain U.S. or foreign regulatory approval and, as a result, be unable to commercialize ATRC-101 or potential future product candidates.

ATRC-101 and any potential future product candidates are subject to extensive governmental regulations relating to, among other things, research, testing, development, manufacturing, safety, efficacy, approval, recordkeeping, reporting, labeling, storage, packaging, advertising and promotion, pricing, marketing and distribution of drugs and therapeutic biologics. Rigorous preclinical testing and clinical trials and an extensive regulatory approval process are required to be successfully completed in the U.S. and in many foreign jurisdictions before a new drug or therapeutic biologic can be marketed. Satisfaction of these and other regulatory requirements is costly, time-consuming, uncertain and subject to unanticipated delays. It is possible that none of the product candidates we may develop will obtain the regulatory approvals necessary for us or our potential future partners to begin selling them.

We have very limited experience in conducting and managing the clinical trials necessary to obtain regulatory approvals, including approval by the FDA. The time required to obtain FDA and other approvals is unpredictable but typically takes many years following the commencement of clinical trials, depending upon the type, complexity and novelty of the product candidate. The standards that the FDA and its foreign counterparts use when regulating us require judgment and can change, which makes it difficult to predict with certainty how they will be applied. Any analysis we perform of data from preclinical and clinical activities is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We may also encounter unexpected delays or increased costs due to new government regulations, for example, from future legislation or administrative action, or from changes in FDA policy during the period of product development, clinical trials and FDA regulatory review. It is

impossible to predict whether legislative changes will be enacted, or whether FDA or foreign regulations, guidance or interpretations will be changed, or what the impact of such changes, if any, may be.

Because ATRC-101 or potential future product candidates we are developing may work through mechanisms of action or work against targets with which the FDA has limited early experience, the FDA and its foreign counterparts have not yet established any definitive policies, practices or guidelines in relation to these product candidates. While we believe these product candidates are regulated as therapeutic biologics that are subject to requirements for review and approval of a Biologics License Application, or BLA, by the FDA, the lack of policies, practices or guidelines may hinder or slow review by the FDA of any regulatory filings that we may submit. Moreover, the FDA may respond to these submissions by defining requirements we may not have anticipated. Such responses could lead to significant delays in the clinical development of these product candidates, including ATRC-101. In addition, because there may be approved treatments for some of the diseases for which we may seek approval, in order to receive regulatory approval, we may need to demonstrate through clinical trials that the current or potential future product candidates we develop to treat these diseases, if any, are not only safe and effective, but safer or more effective than existing products.

Any delay or failure in obtaining required approvals could have a material and adverse effect on our ability to generate revenue from the particular product candidate for which we are seeking approval. Further, we and our potential future partners may never receive approval to market and commercialize any product candidate. Even if we or a potential future partner obtains regulatory approval, the approval may be for targets, disease indications or patient populations that are not as broad as we intended or desired or may require labeling that includes significant use or distribution restrictions or safety warnings. We or a potential future partner may be subject to post-marketing testing requirements to maintain regulatory approval. If ATRC-101 or any of our potential future product candidates prove to be ineffective, unsafe or commercially unviable, we may have to re-engineer ATRC-101 or our potential future product candidates, and our entire pipeline could have little, if any, value, which could require us to change our focus and approach to antibody discovery and development, which would have a material and adverse effect on our business, financial condition, results of operations and prospects.

We are also subject to numerous foreign regulatory requirements governing, among other things, the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process varies among countries and may include all of the risks associated with FDA approval described above as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Moreover, the time required to obtain approval may differ from that required to obtain FDA approval. Approval by the FDA does not ensure approval by regulatory authorities outside the United States and vice versa.

Even if we receive regulatory approval for any of our current or potential future product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense. Additionally, our current or potential future product candidates, if approved, could be subject to labeling and other restrictions and market withdrawal and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our products.

Any regulatory approvals that we or potential future partners obtain for ATRC-101 or any potential future product candidate may also be subject to limitations on the approved indicated uses for which a product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including “Phase 4” clinical trials, and surveillance to monitor the safety and efficacy of such product candidate. In addition, if the FDA or other regulatory authority approves ATRC-101 or any potential future product candidate, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, import, export, advertising, promotion and recordkeeping for such product will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMP and good clinical practices for any clinical trials that we conduct post-approval. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market or voluntary or mandatory product recalls;
- fines, warning letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or our strategic partners;
- suspension or revocation of product license approvals;
- product seizure or detention or refusal to permit the import or export of products; and
- injunctions or the imposition of civil or criminal penalties.

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

We may attempt to secure approval from the FDA through the use of accelerated registration pathways. If unable to obtain approval under an accelerated pathway, we may be required to conduct additional preclinical studies or clinical trials which could increase the expense of obtaining, reduce the likelihood of obtaining or delay the timing of obtaining, necessary marketing approvals. Even if we receive accelerated approval from the FDA, if our confirmatory trials do not verify clinical benefit, or if we do not comply with rigorous post-marketing requirements, the FDA may seek to withdraw accelerated approval.

We may seek an accelerated approval development pathway for our product candidates, including ATRC-101. Under the accelerated approval provisions of the Federal Food, Drug, and Cosmetic Act, or the FDCA, and the FDA's implementing regulations, the FDA may grant accelerated approval to a product designed to treat a serious or life-threatening condition that provides meaningful therapeutic advantage over available therapies and demonstrates an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign or other measure that is thought to predict clinical benefit but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit. The accelerated approval development pathway may be used in cases in which the advantage of a new drug over available therapy may not be a direct therapeutic advantage, but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval is contingent on the sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the drug's clinical profile or risks and benefits for accelerated approval. The FDA may require that any such confirmatory study be initiated or substantially underway prior to the submission of an application for accelerated approval. If such post-approval studies fail to confirm the drug's clinical profile or risks and benefits, the FDA may withdraw its approval of the drug.

If we choose to pursue accelerated approval, we intend to seek feedback from the FDA or will otherwise evaluate our ability to seek and receive such accelerated approval. There can be no assurance that, after our evaluation of the feedback from the FDA or other factors, we will decide to pursue or submit a BLA for accelerated approval or any other form of expedited development, review or approval. Furthermore, if we submit an application for accelerated approval, there can be no assurance that such application will be accepted or that approval will be granted on a timely basis, or at all. The FDA also could require us to conduct further studies or trials prior to considering our application or granting approval of any type. We might not be able to fulfill the FDA's requirements in a timely manner, which would cause delays, or approval might not be granted because our submission is deemed incomplete by the FDA.

Even if we receive accelerated approval from the FDA, we will be subject to rigorous post-marketing requirements, including the completion of confirmatory post-market clinical trials to verify the clinical benefit of the product, and submission to the FDA of all promotional materials prior to their dissemination. The FDA could seek to withdraw accelerated approval for multiple reasons, including if we fail to conduct any required post-market study with

due diligence; a post-market study does not confirm the predicted clinical benefit; other evidence shows that the product is not safe or effective under the conditions of use; or we disseminate promotional materials that are found by the FDA to be false and misleading.

A failure to obtain accelerated approval or any other form of expedited development, review or approval for a product candidate that we may choose to develop would result in a longer time period prior to commercializing such product candidate, could increase the cost of development of such product candidate and could harm our competitive position in the marketplace.

Healthcare legislative reform measures may have a material adverse effect on our business and 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 Patient Protection and Affordable Care Act, or the ACA, was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly impacted the U.S. pharmaceutical industry. Among the provisions of the ACA, of greatest importance to the pharmaceutical and biotechnology industry are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively, and capped the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price (AMP);
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for certain drugs and biologics that are inhaled, infused, instilled, implanted or injected;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% (and 70% as of January 1, 2019) point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D;
- expansion of the entities eligible for discounts under the Public Health program;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- establishment of a Center for Medicare Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending; and
- implementation of the federal physician payment transparency requirements, sometimes referred to as the "Physician Payments Sunshine Act".

Some of the provisions of the ACA have yet to be fully implemented, and there have been legal and political challenges to certain aspects of the ACA. Since January 2017, President Trump has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or the Tax Act, includes a provision that repealed, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year, that is commonly referred to as the "individual mandate." Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high

cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Further, the Bipartisan Budget Act of 2018 (BBA), among other things, amended the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the “donut hole.” In July 2018, CMS published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. On December 14, 2018, a U.S. District Court Judge in the Northern District of Texas ruled that the individual mandate is an inseverable feature of the ACA, and therefore, because it was repealed as part of the Tax Act, the remaining provisions of the ACA are invalid as well. While the Texas U.S. District Court Judge, as well as the Trump Administration and CMS have stated that the ruling will have no immediate effect, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the ACA will impact the ACA and our business.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. On August 2, 2011, the Budget Control Act of 2011 among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation’s automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of 2% per fiscal year. These reductions went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2027 unless additional Congressional action is taken. On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers. Additionally, there has been heightened governmental scrutiny recently over the manner in which manufacturers set prices for their marketed products. For example, there have been several recent Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. At the federal level, the Trump administration’s budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Further, the Trump administration released a “Blueprint” to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. In addition, on January 31, 2019, the HHS Office of Inspector General, proposed modifications to the federal Anti-Kickback Statute discount safe harbor for the purpose of reducing the cost of drug products to consumers which, among other things, if finalized, will affect discounts paid by manufacturers to Medicare Part D plans, Medicaid managed care organizations and pharmacy benefit managers working with these organizations. Although a number of these, and other potential, proposals will require additional authorization to become effective, Congress and the executive branch have each indicated that it will continue to seek new legislative or administrative measures to control drug costs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures and, in some cases, designed to encourage importation from other countries and bulk purchasing. These new laws and initiatives may result in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on our future customers and accordingly, our financial operations.

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 for our product candidates or additional pricing pressures.

If we or potential future partners, manufacturers or service providers fail to comply with healthcare laws and regulations, we or they could be subject to enforcement actions, which could affect our ability to develop, market and sell our products and may harm our reputation.

Healthcare providers, physicians and third-party payors, among others, will play a primary role in the prescription and recommendation of any product candidates for which we obtain marketing approval. Our current and future arrangements with third-party payors, providers and customers, among others, may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute our product candidates for which we obtain marketing approval. Restrictions under applicable federal and state healthcare laws and regulations, include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, a person or entity from knowingly and willfully soliciting, offering, paying, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, lease order, arranging for or recommendation of, any good, facility, item or service, for which payment may be made, in whole or in part, by a federal healthcare program, such as Medicare or Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, a violation of the Anti-Kickback Statute can form the basis for a violation of the federal False Claims Act (discussed below);
- federal civil and criminal false claims laws and civil monetary penalties laws, including the federal False Claims Act, which provides for civil whistleblower or qui tam actions, that impose penalties against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, the government may assert that a claim including items and services resulting from a referral made in violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;
- HIPAA, which imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by HITECH, and its implementing regulations, including the Final Omnibus Rule published in January 2013, which impose obligations on certain covered entity healthcare providers, health plans, and healthcare clearinghouses as well as their business associates that perform certain services involving the use or disclosure of individually identifiable health information, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information, and require notification to affected individuals and regulatory authorities of certain breaches of security of individually identifiable health information;
- the federal false statements statute, which prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services;
- the federal transparency requirements known as the federal Physician Payments Sunshine Act, created as part of ACA, which requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program to report annually to CMS information related to payments and other transfers of value made by that entity to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and
- analogous local, state and foreign laws and regulations, such as state anti-kickback and false claims laws that may apply to healthcare items or services reimbursed by third party payors, including private insurers; local, state and foreign transparency laws that require manufacturers to report information related to payments and transfers of value to other healthcare providers and healthcare entities, marketing expenditures, or drug pricing; state laws that require pharmaceutical companies to register certain employees engaged in marketing activities in the location and comply with the pharmaceutical industry's

voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government; and state and foreign laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Ensuring that our future business arrangements with third parties comply with applicable healthcare laws and regulations could involve substantial costs. If our operations are found to be in violation of any such requirements, we may be subject to penalties, including criminal and significant civil monetary penalties, damages, fines, individual imprisonment, disgorgement, contractual damages, reputational harm, exclusion from participation in government healthcare programs, integrity obligations, injunctions, recall or seizure of products, total or partial suspension of production, denial or withdrawal of pre-marketing product approvals, private qui tam actions brought by individual whistleblowers in the name of the government, refusal to allow us to enter into supply contracts, including government contracts, additional reporting requirements and oversight if subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations. Although effective compliance programs can mitigate the risk of investigation and prosecution for violations of these laws, these risks cannot be entirely eliminated. Any action against us for an alleged or suspected violation could cause us to incur significant legal expenses and could divert our management's attention from the operation of our business, even if our defense is successful. In addition, achieving and sustaining compliance with applicable laws and regulations may be costly to us in terms of money, time and resources.

If we fail to comply with U.S. and foreign regulatory requirements, regulatory authorities could limit or withdraw any marketing or commercialization approvals we may receive and subject us to other penalties that could materially harm our business.

Even if we receive marketing and commercialization approval of a product candidate, we will be subject to continuing regulatory requirements, including in relation to adverse patient experiences with the product and clinical results that are reported after a product is made commercially available, both in the United States and any foreign jurisdiction in which we seek regulatory approval. The FDA has significant post-market authority, including the authority to require labeling changes based on new safety information and to require post-market studies or clinical trials to evaluate safety risks related to the use of a product or to require withdrawal of the product from the market. The FDA also has the authority to require a Risk Evaluation and Mitigation Strategy, or a REMS, after approval, which may impose further requirements or restrictions on the distribution or use of an approved drug or therapeutic biologic. The manufacturer and manufacturing facilities we use to make a future product, if any, will also be subject to periodic review and inspection by the FDA and other regulatory agencies, including for continued compliance with cGMP requirements. The discovery of any new or previously unknown problems with our third-party manufacturers, manufacturing processes or facilities may result in restrictions on the product, manufacturer or facility, including withdrawal of the product from the market. We intend to rely on third-party manufacturers, and we will not have control over compliance with applicable rules and regulations by such manufacturers. Any product promotion and advertising will also be subject to regulatory requirements and continuing regulatory review. If we or our existing or future partners, manufacturers or service providers fail to comply with applicable continuing regulatory requirements in the U.S. or foreign jurisdictions in which we seek to market our products, we or they may be subject to, among other things, fines, warning letters, holds on clinical trials, delay of approval or refusal by the FDA to approve pending applications or supplements to approved applications, suspension or withdrawal of regulatory approval, product recalls and seizures, administrative detention of products, refusal to permit the import or export of products, operating restrictions, injunction, civil penalties and criminal prosecution.

Even if we are able to commercialize any product candidate, such product candidate may become subject to unfavorable pricing regulations or third-party coverage and reimbursement policies, which would harm our business.

Our ability to commercialize any products successfully will depend, in part, on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from third-party payors, such as government authorities, private health insurers and health maintenance organizations. Patients who are prescribed medications for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs

associated with their prescription drugs. Coverage and adequate reimbursement from government healthcare programs, such as Medicare and Medicaid, and private health insurers are critical to new product acceptance. Patients are unlikely to use our future products, if any, unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost.

Cost-containment is a priority in the U.S. healthcare industry and elsewhere. As a result, government authorities and other third party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Third-party payors also may request additional clinical evidence beyond the data required to obtain marketing approval, requiring a company to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of its product. Commercial third-party payors often rely upon Medicare coverage policy and payment limitations in setting their reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. Therefore, coverage and reimbursement for pharmaceutical products in the U.S. can differ significantly from payor to payor. We cannot be sure that coverage and adequate reimbursement will be available for any product that we commercialize and, if reimbursement is available, that the level of reimbursement will be adequate. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If coverage and reimbursement are not available or are available only at limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

Additionally, the regulations that govern regulatory approvals, pricing and reimbursement for new drugs and therapeutic biologics vary widely from country to country. Some countries require approval of the sale price of a drug or therapeutic biologic before it can be marketed. In many countries, the pricing review period begins after marketing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain regulatory approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain regulatory approval.

We are subject to U.S. and foreign anti-corruption and anti-money laundering laws with respect to our operations and non-compliance with such laws can subject us to criminal or civil liability and harm our business.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and possibly other state and national anti-bribery and anti-money laundering laws in countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, third-party intermediaries, joint venture partners and collaborators from authorizing, promising, offering or providing, directly or indirectly, improper payments or benefits to recipients in the public or private sector. We interact with officials and employees of government agencies and government-affiliated hospitals, universities and other organizations. In addition, we may engage third-party intermediaries to promote our clinical research activities abroad or to obtain necessary permits, licenses and other regulatory approvals. We can be held liable for the corrupt or other illegal activities of these third party intermediaries, our employees, representatives, contractors, partners and agents, even if we do not explicitly authorize or have actual knowledge of such activities.

Our Code of Business Conduct and Ethics mandates compliance with the FCPA and other anti-corruption laws applicable to our business throughout the world. However, we cannot assure you that our employees and third-party intermediaries will comply with this code or such anti-corruption laws. Noncompliance with anti-corruption and anti-money laundering laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension or debarment from contracting with certain persons, the loss of export privileges, reputational harm, adverse media coverage and other collateral consequences. If any subpoenas, investigations or other enforcement actions are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, results of operations and financial condition could be materially harmed. In addition,

responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense and compliance costs and other professional fees. In certain cases, enforcement authorities may even cause us to appoint an independent compliance monitor which can result in added costs and administrative burdens.

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

On December 20, 2017, the U.S. Congress passed the Tax Act, enacting comprehensive tax legislation that includes significant changes to the taxation of business entities. These changes include, among others: a permanent reduction to the corporate income tax rate; a partial limitation on the deductibility of business interest expense; a shift of the U.S. taxation of multinational corporations from a tax on worldwide income to a territorial system (along with certain rules designed to prevent erosion of the U.S. income tax base); and a one-time tax on accumulated offshore earnings held in cash and illiquid assets, with the latter taxed at a lower rate.

Notwithstanding the reduction in the corporate income tax rate, the overall impact of this tax reform remains uncertain, and our business and financial condition could be adversely affected. This Quarterly Report on Form 10-Q does not provide an in-depth discussion of any such tax legislation or the manner in which it might affect purchasers of our Class A common stock. We urge our stockholders to consult with their legal and tax advisors with respect to any such legislation and the potential tax consequences of investing in our Class A common stock.

Risks Related to Our Class A Common Stock

Our quarterly operating results may fluctuate significantly or may fall below the expectations of investors or securities analysts, each of which may cause our stock price to fluctuate or decline.

We expect our operating results to be subject to quarterly fluctuations. Our net loss and other operating results will be affected by numerous factors, including:

- variations in the level of expense related to the ongoing development of our product candidates or future development programs;
- results of clinical trials, or the addition or termination of clinical trials or funding support by us or potential future partners;
- our execution of any collaboration, licensing or similar arrangements, and the timing of payments we may make or receive under potential future arrangements or the termination or modification of any such potential future arrangements;
- any intellectual property infringement, misappropriation or violation lawsuit or opposition, interference or cancellation proceeding in which we may become involved;
- additions and departures of key personnel;
- strategic decisions by us or our competitors, such as acquisitions, divestitures, spin-offs, joint ventures, strategic investments or changes in business strategy;
- if any of our product candidates receives regulatory approval, the terms of such approval and market acceptance and demand for such product candidates;
- regulatory developments affecting our product candidates or those of our competitors; and
- changes in general market and economic conditions.

If our quarterly operating results fall below the expectations of investors or securities analysts, the price of our Class A common stock could decline substantially. Furthermore, any quarterly fluctuations in our operating results may, in turn, cause the price of our stock to fluctuate substantially. We believe that quarterly comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of our future performance.

Our stock price may be volatile and purchasers of our Class A common stock could incur substantial losses.

Our stock price is likely to be volatile. As a result of this volatility, investors may not be able to sell their Class A common stock at or above the initial public offering price. The market price for our Class A common stock may

be influenced by many factors, including the other risks described in this section of the Quarterly Report on Form 10-Q titled “Risk Factors” and the following:

- our ability to advance ATRC-101 or potential future product candidates through preclinical studies and clinical trials;
- results of preclinical studies and clinical trials of ATRC-101 or potential future product candidates, or those of our competitors or potential future partners;
- regulatory or legal developments in the United States and other countries, especially changes in laws or regulations applicable to our products;
- the success of competitive products or technologies;
- introductions and announcements of new products by us, our future commercialization partners, or our competitors, and the timing of these introductions or announcements;
- actions taken by regulatory agencies with respect to our products, clinical trials, manufacturing process or sales and marketing terms;
- actual or anticipated variations in our financial results or those of companies that are perceived to be similar to us;
- the success of our efforts to acquire or in-license additional technologies, products or product candidates;
- developments concerning any future collaborations, including, but not limited to, those with our sources of manufacturing supply and our commercialization partners;
- market conditions in the pharmaceutical and biotechnology sectors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- developments or disputes concerning patents or other proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our products;
- our ability or inability to raise additional capital and the terms on which we raise it;
- the recruitment or departure of key personnel;
- changes in the structure of healthcare payment systems;
- actual or anticipated changes in earnings estimates or changes in stock market analyst recommendations regarding our Class A common stock, other comparable companies or our industry generally;
- our failure or the failure of our competitors to meet analysts’ projections or guidance that we or our competitors may give to the market;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- announcement and expectation of additional financing efforts;
- speculation in the press or investment community;
- trading volume of our Class A common stock;
- sales of our Class A common stock by us or our stockholders;
- the concentrated ownership of our Class A common stock;
- changes in accounting principles;
- terrorist acts, acts of war or periods of widespread civil unrest;
- natural disasters and other calamities; and
- general economic, industry and market conditions.

In addition, the stock markets in general, and the markets for pharmaceutical, biopharmaceutical and biotechnology stocks in particular, have experienced extreme volatility that has been often unrelated to the operating performance of the issuer. These broad market and industry factors may seriously harm the market price of our Class A common stock, regardless of our operating performance.

The future issuance of equity or of debt securities that are convertible into equity would dilute our share capital.

We may choose to raise additional capital in the future, depending on market conditions, strategic considerations and operational requirements. To the extent that additional capital is raised through the issuance of shares or other securities convertible into shares, our stockholders will be diluted. Future issuances of our Class A common stock or other equity securities, or the perception that such sales may occur, could adversely affect the trading price of our Class A common stock and impair our ability to raise capital through future offerings of shares or equity securities.

No prediction can be made as to the effect, if any, that future sales of Class A common stock or the availability of Class A common stock for future sales will have on the trading price of our Class A common stock.

The dual class structure of our common stock and the option of the holder of shares of our Class B common stock to convert into shares of our Class A common stock may limit your ability to influence corporate matters.

Our Class A common stock has one vote per share, while our Class B common stock is non-voting. Nonetheless, each share of our Class B common stock may be converted at any time into one share of Class A common stock at the option of its holder, subject to the limitations provided for in our amended and restated certificate of incorporation. Consequently, if holders of Class B common stock exercise their option to make this conversion, this will have the effect of increasing the relative voting power of those prior holders of our Class B common stock, and correspondingly decrease the voting power of the current holders of our Class A common stock, which may limit your ability to influence corporate matters. Because our Class B common stock is generally non-voting, stockholders who own more than 10% of our common stock overall but 10% or less of our Class A common stock will not be required to report changes in their ownership from transactions in our Class B common stock pursuant to Section 16(a) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and would not be subject to the short-swing profit provisions of Section 16(b) of the Exchange Act. In addition, acquisitions of Class B common stock would not be subject to notification pursuant to the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended.

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

In June 2019, we completed the initial public offering of our Class A common stock. Although our Class A common stock trades on The Nasdaq Global Select Market, an active trading market for our shares may never develop or be sustained. If an active market for our Class A common stock does not develop, it may be difficult for stockholders to sell our shares without depressing the market price for the shares or at all.

Our management has flexibility in allocating the net proceeds from our initial public offering, and other public offerings, and you may not agree with how we use these proceeds, and these proceeds may not be invested successfully.

We intend to use the net proceeds from our initial public offering and other public offerings to fund preclinical and clinical development activities, further development of our discovery platform, discover new product candidates, hire additional personnel, make capital expenditures, pay costs of operating as a public company and fund other general purposes. We may also use a portion of the net proceeds from our public offerings to in-license, acquire or invest in complementary businesses, technologies, products or assets. However, we have no current commitments or obligations to do so. Therefore, our management will have flexibility in allocating the net proceeds from our public offerings. Accordingly, you will be relying on the judgment of our management with regard to the allocation of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being allocated appropriately. It is possible that the proceeds will be invested in a way that does not yield a favorable, or any, return for our company.

If securities or industry analysts do not publish research or reports about our company, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.*

The trading market for our Class A common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. If any of the analysts who cover us, or who commence covering us in the future, issue an adverse or misleading opinion regarding us, our business model, our intellectual property rights or our Class A common stock performance, or if our target studies and operating results fail to meet the expectations of the analysts, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

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

Based on the beneficial ownership of our capital stock as of September 30, 2020, our executive officers and directors, together with holders of 5% or more of our capital stock and their respective affiliates, beneficially owned approximately 60.8% of our Class A common stock and Class B common stock. As a result, these stockholders, if acting together, will continue to have significant influence over the outcome of corporate actions requiring stockholder approval, including the election of directors, any merger, consolidation or sale of all or substantially all of our assets and any other significant corporate transaction. In addition, pursuant to a nominating agreement between us and Baker Brothers Life Sciences L.P. and 667, L.P., or together, Baker Brothers, following the closing of our initial public offering and so long as Baker Brothers together with its affiliates beneficially owns at least 3,333,333 shares of our common stock, we will have the obligation to support the nomination of, and to cause our board of directors to include in the slate of nominees recommended to our stockholders for election, two individuals designated by Baker Brothers, each a Baker Designee, subject to customary conditions and exceptions, as well as the obligation to invite two board of directors observer designees of Baker Brothers to attend all meetings of our board of directors and all meetings of the committees of our board of directors as a nonvoting observer, if there is no Baker Designee on our board of directors, subject to customary conditions and exceptions. Baker Brothers and its affiliates may therefore have influence over management and control over matters requiring stockholder approval, including the annual election of directors and significant corporate transactions, such as a merger or other sale of our company or its assets, following the closing of our initial public offering and for the foreseeable future.

The interests of these stockholders may not be the same as, and may even conflict with, your interests. For example, these stockholders could delay or prevent a change of control of our company, even if such a change of control would benefit our other stockholders, which could deprive our stockholders of an opportunity to receive a premium for their Class A common stock as part of a sale of our company or our assets and might affect the prevailing market price of our Class A common stock. The significant concentration of stock ownership may adversely affect the trading price of our Class A common stock due to investors' perception that conflicts of interest may exist or arise.

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

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our Class A common stock in the public market after the lock-up and other legal restrictions on resale in connection with our initial public offering lapse, the trading price of our Class A common stock could decline. These lock-up agreements expired in December 2019, which was 180 days from the date of the June 2019 Prospectus filed in connection with our initial public offering. In addition, shares of Class A common stock that are either subject to outstanding options or reserved for future issuance under our 2019 Equity Incentive Plan, or our 2019 Plan, will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 under the Securities Act of 1933, as amended, or the Securities Act. If these additional shares of Class A common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our Class A common stock could decline.

The holders of 17,248,259 shares of our Class A common stock (including Class A common stock issuable upon conversion of Class B common stock) at December 31, 2019 are entitled to rights with respect to the registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares held by affiliates, as defined in Rule 144 under the Securities Act. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our Class A common stock.

Future sales and issuances of our Class A common stock or Class B common stock or rights to purchase Class A common stock or Class B common stock, including pursuant to our 2019 Plan, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that significant additional capital may be needed in the future to continue our planned operations, including further development of our discovery platform, preparing IND filings, conducting clinical trials, commercialization efforts, expanded research and development activities and costs associated with operating a public company. To raise capital, we may sell Class A common stock or Class B common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell Class A common stock or Class B common stock, convertible securities or other equity securities, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to the holders of our Class A common stock.

Pursuant to our 2019 Plan, our management is authorized to grant stock options to our employees, directors and consultants. Initially, the aggregate number of shares of our Class A common stock that may be issued pursuant to stock awards under our 2019 Plan is 6,141,842 shares. Additionally, the number of shares of our Class A common stock reserved for issuance under our 2019 Plan will automatically increase on January 1 of each year, beginning on January 1, 2020 and continuing through and including January 1, 2029, by 4% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by our board of directors. Unless our board of directors elects not to increase the number of shares available for future grant each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

We are an “emerging growth company” and our election of reduced reporting requirements applicable to emerging growth companies may make our Class A common stock less attractive to investors.

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act, or JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, or Section 404, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an emerging growth company for up to five years following the completion of our initial public offering, although circumstances could cause us to lose that status earlier, including if we are deemed to be a “large accelerated filer,” which occurs when the market value of our Class A common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30, or if we have total annual gross revenue of \$1.07 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31, or if we issue more than \$1.0 billion in non-convertible debt during any three-year period before that time, in which case we would no longer be an emerging growth company immediately. Even after we no longer qualify as an emerging growth company, we could still qualify as a “smaller reporting company,” which would allow us to take advantage of many of the same exemptions from disclosure requirements including not being required to comply with the auditor attestation requirements of Section 404 and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. We cannot predict if investors will find our Class A common stock less attractive because we may rely on these exemptions. If some investors find our Class A common stock less attractive as a result, there may be a less active trading market for our Class A common stock and our share price may be more volatile.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to avail ourselves of an exemption that allows us to delay adopting new or revised accounting standards until such time as those standards apply to private companies. As a result, we will not be subject to the same new or revised accounting standards as other public companies that comply with the public company effective dates, including but not limited to the new lease accounting standard. We may also elect to take advantage of other reduced reporting requirements in future filings. As a result of these elections, the information that we provide to our stockholders may be different than you might receive from other

public reporting companies. However, if we later decide to opt out of the extended period for adopting new accounting standards, we would need to disclose such decision and it would be irrevocable.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an emerging growth company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq Stock Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance, which in turn could make it more difficult for us to attract and retain qualified members of our board of directors. However, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

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

In general, under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, a corporation that undergoes an “ownership change” is subject to limitations on its ability to utilize its pre-change NOL or tax credits to offset future taxable income. Our existing NOLs or credits may be subject to substantial limitations arising from previous ownership changes, and if we undergo an ownership change our ability to utilize NOLs or credits could be further limited by Section 382 of the Code. In addition, future changes in our stock ownership, many of which are outside of our control, could result in an ownership change under Section 382 of the Code. Our NOLs or credits may also be impaired under state law. Accordingly, we may not be able to utilize a material portion of our NOLs or credits. Furthermore, our ability to utilize our NOLs or credits is conditioned upon our attaining profitability and generating U.S. federal and state taxable income. As described above under “—Risks Related to Business,” we have incurred significant net losses since our inception and 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 or state taxable income necessary to utilize our NOLs or credits.

We previously identified a material weakness in our internal control over financial reporting, which we believe has now been remediated. Any future failure to establish and maintain effective internal control over financial reporting could result in material misstatements in our financial statements and cause investors to lose confidence in our reported financial information, which in turn could cause the trading price of our securities to decline.

We previously identified a material weakness in our internal control over financial reporting related to a lack of application-based controls inherent in our enterprise resource planning, or ERP, system used for maintaining our financial books and records. As a result of such weakness, our management concluded that our disclosure controls and procedures and internal control over financial reporting were not effective as of December 31, 2018 and December 31, 2017.

As of December 31, 2019, management sufficiently completed its remediation of this material weakness by taking the following actions:

- We have implemented a new ERP system that is our system of record for our financial books and records from January 1, 2019 forward. This new ERP system has strong application-based controls inherent in its design that provide a stronger internal control infrastructure for financial reporting and for our internal control procedures.

- We strengthened the segregation of duties by hiring additional personnel and implementing workflows to appropriately segregate the incompatible duties of custody of assets, approvals and authorizations, and recording of transactions;
- We designed additional controls around identification, documentation and application of technical accounting guidance with particular emphasis on events outside the ordinary course of business. These controls include the implementation of additional supervision and review activities by qualified personnel, the preparation of formal accounting memoranda to support our conclusions on technical accounting matters, and the development and use of checklists and research tools to assist in compliance with GAAP with regard to complex accounting issues.
- We developed and implemented policies and procedures related to security access, including security access reviews of our key financial systems' users to ensure the appropriateness of their roles and security access levels.
- We performed testing related to the functioning of these controls and continue to monitor these controls and make enhancements as needed.

We have completed the documentation and review of the corrective actions described above and our management has concluded that the design and operation of our closing and financial reporting processes is effective and the previously identified material weakness has been remediated as of December 31, 2019.

Although we have remediated this material weakness in our internal control over financial reporting, any failure to improve our disclosure controls and procedures or internal control over financial reporting to address any identified weaknesses in the future, if they were to occur, could prevent us from maintaining accurate accounting records and discovering material accounting errors. Any of these results could adversely affect our business and the value of our common stock.

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

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. As a result, capital appreciation, if any, of our Class A common stock will be your sole source of gain for the foreseeable future.

We may incur significant costs from class action litigation due to our expected stock volatility.

Our stock price may fluctuate for many reasons, including as a result of public announcements regarding the progress of our development efforts for our discovery platform and our product candidates, the development efforts of future partners or competitors, the addition or departure of our key personnel, variations in our quarterly operating results and changes in market valuations of biopharmaceutical and biotechnology companies. This risk is especially relevant to us because biopharmaceutical and biotechnology companies have experienced significant stock price volatility in recent years. When the market price of a stock has been volatile as our stock price may be, holders of that stock have occasionally brought securities class action litigation against the company that issued the stock. If any of our stockholders were to bring a lawsuit of this type against us, even if the lawsuit is without merit, we could incur substantial costs defending the lawsuit. The lawsuit could also divert the time and attention of our management.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of our company, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and our amended and restated bylaws may delay or prevent an acquisition of our company or a change in our management. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. These provisions include:

- a prohibition on actions by our stockholders by written consent;
- a requirement that special meetings of stockholders, which our company is not obligated to call more than once per calendar year, be called only by the chairman of our board of directors, our chief executive officer, or our board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors;
- advance notice requirements for election to our board of directors and for proposing matters that can be acted upon at stockholder meetings;
- division of our board of directors into three classes, serving staggered terms of three years each; and
- the authority of the board of directors to issue preferred stock with such terms as the board of directors may determine.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, as amended, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. These provisions would apply even if the proposed merger or acquisition could be considered beneficial by some stockholders.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and, to the extent enforceable, the federal district courts of the United States of America will be the exclusive forums 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 employees.*

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us or our directors, officers, or employees arising under the Delaware General Corporation Law, our amended and restated certificate of incorporation, or our amended and restated bylaws; and
- any action asserting a claim against us that is governed by the internal-affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the U.S. federal courts have exclusive jurisdiction. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition, and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

These exclusive-forum provisions 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 lawsuits against us and our directors, officers, and other employees. If any other court of competent jurisdiction were to find either exclusive-forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business.

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

(a) Recent Sales of Unregistered Equity Securities

None.

(b) Use of Proceeds

None.

(c) Issuer Purchases of Equity Securities

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not Applicable

Item 5. Other Information

On August 12, 2020, we entered into a Sales Agreement, or the Sales Agreement, with Cowen and Company, LLC, or Cowen. The Sales Agreement provides that, upon the terms and subject to the conditions set forth therein, we may issue and sell through Cowen, acting as our sales agent and/or principal, shares of our Class A common stock having an aggregate offering price of up to \$100,000,000, which we refer to as the ATM Shares. We have no obligation to sell any ATM Shares under the Sales Agreement. The issuance and sale of the ATM Shares, if any, is subject to the continued effectiveness of our shelf registration statement on Form S-3, File No. 333-239652, initially filed with the SEC on July 2, 2020 and declared effective by the SEC on July 10, 2020. We make no assurance as to the continued effectiveness of this shelf registration statement.

Pursuant to the Sales Agreement, each time we wish to issue and sell ATM Shares under the Sales Agreement, which we refer to as a Placement, we will notify Cowen with a placement notice containing the parameters within which we desire to sell the ATM Shares, which shall at a minimum include the number of ATM Shares to be issued, the time period during which sales are requested to be made, any limitation on the number or dollar amount of ATM Shares that may be sold in any one day and any minimum price below which sales may not be made.

Upon delivery of a placement notice by us, and unless the sale of the ATM Shares described therein has been declined, suspended or otherwise terminated in accordance with the terms of the Sales Agreement, Cowen, as agent, will use its commercially reasonable efforts consistent with its normal trading and sales practices to sell on behalf of us such ATM Shares up to the amount specified, and otherwise in accordance with the terms of such placement notice.

Pursuant to the Sales Agreement, Cowen may sell the Shares by any method permitted by law deemed to be an “at the market offering” under Rule 415 of the Securities Act. The Sales Agreement provides that Cowen will be entitled to compensation for its services in an amount equal to up to 3.0% of gross proceeds from each Placement. Under the terms of the Sales Agreement, the Company may also sell ATM Shares to Cowen acting as principal for Cowen’s own account at prices agreed upon at the time of sale.

The Sales Agreement may be terminated by Cowen or us at any time upon notice to the other party, or by Cowen at any time in certain circumstances, including but not limited to the occurrence of a material adverse change to us.

The foregoing description of the Sales Agreement is qualified in its entirety by reference to the Sales Agreement, a copy of which is attached to our Quarterly Report on Form 10-Q filed with the SEC on August 12, 2020 as Exhibit 10.2 and incorporated herein by reference.

Item 6. Exhibits

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

[Table of Contents](#)

Number	Exhibit Title	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
1.1	Underwriting Agreement, dated as of July 15, 2020, by and among the Registrant, Cowen and Company, LLC, Evercore Group, L.L.C. and Stifel, Nicolaus & Company, Incorporated.	8-K	001-38935	1.1	07/16/20	
3.1	Amended and Restated Certificate of Incorporation of the Registrant.	8-K	001-38935	3.1	06/26/19	
3.2	Amended and Restated Bylaws of the Registrant.	8-K	001-38935	3.2	06/26/19	
4.1	Amended and Restated Investors' Rights Agreement, dated as of September 5, 2018, by and among the Registrant and certain of its stockholders.	S-1/A	333-231770	4.1	06/10/19	
4.2	Form of Warrant to Purchase Shares of Series A Preferred Stock, dated as of August 21, 2015, by and between the Registrant and Warrant holders of the Registrant.	S-1/A	333-231770	4.2	06/10/19	
4.3	Form of Class A Common Stock Certificate of the Registrant.	8-K	001-38935	4.1	06/26/19	
4.4	Form of Class B Common Stock Certificate of the Registrant.	8-K	001-38935	4.2	06/26/19	
10.1+	Collaboration and License Agreement by and between Xencor, Inc. and the Registrant, dated July 2, 2020	10-Q	001-38935	10.1	08/12/20	
10.2	Class A Common Stock Sales Agreement between the Registrant and Cowen and Company, LLC, dated August 12, 2020	10-Q	001-38935	10.2	08/12/20	
10.3#	Amended and Restated Executive Employment Agreement, dated as of November 11, 2020, by and between the Registrant and John Orwin					X
10.4#	Amended and Restated Executive Employment Agreement, dated as of November 11, 2020, by and between the Registrant and Herbert Cross					X
10.5#	Amended and Restated Executive Employment Agreement, dated as of November 11, 2020, by and between the Registrant and Tito Serafini					X
10.6#	Amended and Restated Executive Employment Agreement, dated as of November 11, 2020, by and between the Registrant and Lisa Lynn Decker					X

[Table of Contents](#)

10.7#	Amended and Restated Executive Employment Agreement, dated as of November 11, 2020, by and between the Registrant and Norman Greenberg	X
10.8#	Amended and Restated Executive Employment Agreement, dated as of November 11, 2020, by and between the Registrant and Courtney Phillips	X
31.1	Certification of Chief Executive Officer, as required by Rule 13a-14(a) or Rule 15d-14(a).	X
31.2	Certification of Chief Financial Officer, as required by Rule 13a-14(a) or Rule 15d-14(a).	X
32.1*	Certification of Principal Executive Officer and Principal Financial Officer, as 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. Section 1350).	X
101.INS	XBRL Instance Document.	X
101.SCH	XBRL Taxonomy Extension Schema Document.	X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.	X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.	X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.	X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.	X

Indicates management contract or compensatory plan.

* The certifications attached as Exhibit 32.1 accompany this Quarterly Report on Form 10-Q pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed “filed” by the Registrant for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

+ Portions of this exhibit (indicated by this asterisk) have been omitted as the Registrant has determined that (i) the omitted information is not material and (ii) the omitted information would likely cause competitive harm if publicly disclosed.

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.

ATRECA, INC.

Date: November 12, 2020

By: /s/ JOHN A. ORWIN
John A. Orwin
President and Chief Executive Officer
(Principal Executive Officer)

Date: November 12, 2020

By: /s/ HERBERT CROSS
Herbert Cross
Chief Financial Officer
(Principal Financial and Accounting Officer)

ATRECA, INC.

**AMENDED AND RESTATED EXECUTIVE EMPLOYMENT AGREEMENT
for
JOHN ORWIN**

This Amended and Restated Executive Employment Agreement (the “**Agreement**”), made between Atreca, Inc. (the “**Company**”) and John Orwin (the “**Executive**”) (collectively, the “**Parties**”), is effective as of November 11, 2020 (the “**Effective Date**”).

WHEREAS, Executive and the Company previously entered into that certain Executive Employment Agreement, dated March 21, 2018 (the “**Employment Agreement**”), which has governed the terms and conditions of Executive’s employment with the Company to date;

WHEREAS, the Company desires for Executive to continue to provide services to the Company, and wishes to provide Executive with certain compensation and benefits in return for such services, as set forth in this Agreement;

WHEREAS, the Company and Executive acknowledge that Executive has served as Chief Executive Officer since on or around April 16, 2018 and Executive represents that he is not aware of any events or actions that have occurred since such date that would give rise to his resignation of employment for Good Reason (as defined and set forth below) as of the date he is executing this Agreement; and

WHEREAS, the Company and Executive desire to amend and restate the Employment Agreement such that this Agreement provides all of the terms and conditions of Executive’s continued employment with the Company as of the Effective Date; and

WHEREAS, Executive wishes to continue to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits, as set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereto agree that the Employment Agreement is amended, restated and superseded by this Agreement, and shall be of no further force or effect, and the Parties further agree as follows:

1. Employment by the Company.

1.1 Position. Executive shall continue to serve as the Company’s Chief Executive Officer. During the term of Executive’s employment with the Company, Executive will devote Executive’s best efforts and substantially all of Executive’s business time and attention to the business of the Company, except for approved vacation periods and reasonable periods of illness or other incapacities permitted by the Company’s general employment policies.

1.2 Duties and Location. Executive shall continue to perform such duties as are required by the Company's Board of Directors, to whom Executive will report. Executive's primary office location shall be the Company's South San Francisco, California office. The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time, and to require reasonable business travel. The Company may modify Executive's job title and duties as it deems necessary and appropriate in light of the Company's needs and interests from time to time.

1.3 Policies and Procedures. The employment relationship between the Parties shall continue to be governed by the general employment policies and practices of the Company, as adopted or modified from time to time in the Company's discretion, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. Compensation.

2.1 Salary. For services to be rendered hereunder, Executive shall receive a base salary at the rate of five-hundred-sixty-six thousand five-hundred dollars (\$566,500.00) per year (the "**Base Salary**"), subject to standard payroll deductions and withholdings and payable in accordance with the Company's regular payroll schedule. As an exempt salaried employee, Executive will be required to work the Company's normal business hours, and such additional time as appropriate for Executive's work assignments and position, and Executive will not be entitled to overtime compensation.

2.2 Bonus. Executive will be eligible for an annual discretionary bonus of up to fifty-five percent (55%) of Executive's Base Salary (the "**Annual Bonus**"), under the terms herein and in the Company's written bonus plan applicable to executives. Whether Executive receives an Annual Bonus for any given year, and the amount of any such Annual Bonus, will be determined by the Company's Board of Directors (the "**Board**") or the Compensation Committee of the Board, in its sole discretion, based upon the Company's and Executive's achievement of objectives to be determined on an annual basis by the Board or the Compensation Committee of the Board. In order to earn and receive payment of an Annual Bonus (including a prorated Annual Bonus), Executive must be an active employee of the Company on the date that any such Annual Bonus is paid. Any such Annual Bonus will be paid no later than March 15 of the calendar year after the applicable bonus year.

3. Standard Company Benefits. Executive shall continue to be entitled to participate in all employee benefit programs for which Executive is eligible under the terms and conditions of the benefit plans and applicable policies that may be in effect from time to time and provided by the Company to its employees. The Company reserves the right to cancel or change the benefit plans or programs it offers to its employees at any time. Additional information regarding these benefits is available upon request.

4. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in furtherance of or in connection

with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

5. **Equity.** Any and all Equity Awards granted to Executive prior to the Effective Date will continue to be governed by the terms of the applicable stock option and equity incentive award plans or agreements and grant notices. For purposes of this Agreement, "**Equity Awards**" shall mean all stock options, restricted stock and restricted stock units and such other equity awards granted to Executive prior to, or after, the Effective Date pursuant to the Company's stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof.

6. **At-Will Employment.** Executive's employment relationship remains at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause (as defined below) or advance notice.

7. **Termination of Employment.**

7.1 **Termination without Severance: Termination for Cause; Resignation Without Good Reason.** If Executive resigns his employment without Good Reason (as defined below), or the Company terminates Executive's employment for Cause (as defined below) (each such termination referred to as a "**Non-Qualifying Termination**"), then (a) Executive will no longer vest in any Equity Awards, (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned), and (c) Executive will not be entitled to any Severance Benefits (as defined below). In addition, Executive shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination.

7.2 **Termination with Severance: Termination Without Cause; Resignation for Good Reason.** In the event Executive's employment with the Company is terminated by the Company without Cause (other than as a result of Executive's death or disability), or Executive resigns his employment for Good Reason (either such termination referred to as a "**Qualifying Termination**"), then, (i) provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a "**Separation from Service**"), and (ii) subject to Paragraph 8 ("**Conditions to Receipt of Severance Benefits**") and Executive's continued compliance with the terms of this Agreement (including the Confidentiality Agreement), the Company shall provide Executive with severance benefits in accordance with the terms below (separately or collectively, the "**Severance Benefits**");

(i) **Qualifying Termination not in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs at any time other than within the thirty (30)-day period prior to the closing of a Change in Control (as defined below) or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company: (a) the equivalent of twelve (12) months of Executive's Base Salary in effect as of the date of Executive's employment termination, subject to standard payroll deductions and

withholdings (the “**Cash Severance**”); and (b) the equivalent of twelve (12) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**COBRA Severance**”). The Cash Severance and COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the COBRA Severance payment toward the cost of COBRA premiums.

(ii) **Qualifying Termination in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs within the thirty (30)-day period prior to the closing of a Change in Control or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company:

(a) **Severance.** The equivalent of: (i) eighteen (18) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**CIC Cash Severance**”); and (ii) eighteen (18) months (i.e., 1.5x) of Executive’s target Annual Bonus for the applicable bonus year in which the termination of employment occurs, subject to standard payroll deductions and withholdings (the “**Annual Bonus Severance**”); and (iii) eighteen (18) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**CIC COBRA Severance**”). The CIC Cash Severance, Annual Bonus Severance, and CIC COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the CIC COBRA Severance payment toward the cost of COBRA premiums.

(b) **Accelerated Vesting.** As additional Severance Benefits (the “**Change of Control Accelerated Vesting**”): (i) vesting of Executive’s time-based vesting Equity Awards shall be accelerated such that one hundred percent (100%) of the shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive’s last day of employment; and (ii) vesting of Executive’s performance-based vesting Equity Awards shall be accelerated as if all performance goals were achieved at the 100% level of performance applicable to such awards, and such number of shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive’s last day of employment.

7.3 Termination in the Event of Death or Disability. In the event that Executive’s employment with the Company terminates as a result of Executive’s death or disability, the Company shall accelerate the vesting of fifty percent (50%) of the outstanding then-unvested Equity Awards granted to Executive, as of Executive’s last day of employment (the “**Unforeseen Events Accelerated Vesting**,” and either the Change of

Control Accelerated Vesting or the Unforeseen Events Acceleration, the “**Accelerated Vesting**”), it being acknowledged and agreed that, other than the Unforeseen Events Accelerated Vesting, Executive shall not be entitled to any Severance Benefits if Executive’s employment with the Company terminates as a result of Executive’s death or disability.

8. Conditions to Receipt of Severance Benefits.

8.1 General Conditions. The receipt of the Severance Benefits, will be subject to Executive signing and not revoking a separation agreement and release of claims in a form reasonably satisfactory to the Company within sixty (60) days following the date of Executive’s Separation from Service (the “**Separation Agreement**”). No Severance Benefits will be paid or provided until the Separation Agreement becomes effective. Executive shall also resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination. Furthermore, as a precondition to Executive’s receipt of the Severance Benefits, on or within five (5) days after Executive’s Separation from Service (or earlier if requested by the Company), Executive agrees to return to the Company all Company documents (and all copies thereof) and other Company property within Executive’s possession, custody or control.

8.2 Clawback and Recovery. All Severance Benefits provided under this Agreement will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company’s securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of common stock of the Company or other cash or property upon the occurrence of a termination of employment for Cause.

9. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

(i) Cause. For purposes of this Agreement, “**Cause**” for termination will mean: (a) commission of any felony or crime involving dishonesty; (b) participation in any fraud against the Company; (c) material breach of Executive’s duties to the Company; (d) intentional damage to any property of the Company; (e) misconduct, or other violation of Company policy that causes harm; (f) breach of any written agreement with the Company; and (g) conduct by Executive which in the good faith and reasonable determination of the Board demonstrates gross unfitness to serve. The determination as to whether Executive is being terminated for Cause shall be made in good faith by the Company. The foregoing definition does not in any way limit the Company’s ability to terminate Executive’s employment at any time.

(ii) **Change in Control.** For purposes of this Agreement, “**Change in Control**” shall have the same meaning given it in the Company’s 2019 Equity Incentive Plan, as may be amended or restated.

(iii) **Good Reason.** For purposes of this Agreement, Executive shall have “**Good Reason**” for resignation from employment with the Company if any of the following actions are taken by the Company without Executive’s prior written consent: (a) a material reduction in Executive’s Base Salary, which the parties agree is a reduction of at least ten percent (10%) of Executive’s Base Salary (unless pursuant to a salary reduction program applicable generally to the Company’s similarly situated employees); (b) a material reduction in Executive’s duties (including responsibilities and/or authorities), *provided, however*, that, solely following a Change of Control, a change in job position (including a change in title) shall not be deemed a “material reduction” in and of itself unless Executive’s new duties are materially reduced from the prior duties; or (c) relocation of Executive’s principal place of employment to a place that increases Executive’s one-way commute by more than fifty (50) miles as compared to Executive’s then-current principal place of employment immediately prior to such relocation. In order to resign his employment for Good Reason, Executive must provide written notice to the Company’s Board within thirty (30) days after the first occurrence of the event giving rise to Good Reason setting forth the basis for Executive’s resignation, allow the Company at least thirty (30) days from receipt of such written notice to cure such event, and if such event is not reasonably cured within such period, Executive must resign from all positions Executive then holds with the Company not later than fifteen (15) days after the expiration of the cure period. Notwithstanding anything to the contrary in this Agreement, the Company and Executive agree that the duties and responsibilities of a chief executive officer of a subsidiary or division or other business unit of an acquirer constitute a material reduction and diminution in Executive’s duties as compared to the CEO position contemplated by this Agreement.

10. Section 409A. It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the Internal Revenue Code of 1986, as amended (“**Section 409A**”) provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive’s right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive’s Separation from Service to be a “specified employee” for purposes of Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be “deferred compensation”, then to the extent delayed commencement of any portion of such payments is required in order to avoid a prohibited

distribution under Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to Executive prior to the earliest of (i) the expiration of the six (6)-month period measured from the date of Executive's Separation from Service with the Company, (ii) the date of Executive's death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to Executive, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. **To the extent any payment under this Agreement may be classified as a "short-term deferral" within the meaning of Section 409A, such payment shall be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Except as otherwise expressly provided herein, to the extent any expense reimbursement or the provision of any in-kind benefit under this Agreement (or otherwise referenced herein) is determined to be subject to (and not exempt from) Section 409A of the Code, the amount of any such expenses eligible for reimbursement, or the provision of any in-kind benefit, in one calendar year shall not affect the expenses eligible for reimbursement or in kind benefits to be provided in any other calendar year, in no event shall any expenses be reimbursed after the last day of the calendar year following the calendar year in which Executive incurred such expenses, and in no event shall any right to reimbursement or the provision of any in-kind benefit be subject to liquidation or exchange for another benefit.**

11. Parachute Payments. If any payment or benefit (including payments and benefits pursuant to this Agreement) that Executive would receive in connection with a Change in Control from the Company or otherwise ("**Transaction Payment**") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the "**Code**") and (ii) but for this Paragraph, would be subject to the excise tax imposed by Section 4999 of the Code (the "**Excise Tax**"), then the Company shall cause to be determined, before any amounts of the Transaction Payment are paid to Executive, which of the following two alternative forms of payment would result in Executive's receipt, on an after-tax basis, of the greater amount of the Transaction Payment notwithstanding that all or some portion of the Transaction Payment may be subject to the Excise Tax: (1) payment in full of the entire amount of the Transaction Payment (a "**Full Payment**"), or (2) payment of only a part of the Transaction Payment so that Executive receives the largest payment possible without the imposition of the Excise Tax (a "**Reduced Payment**"). For purposes of determining whether to make a Full Payment or a Reduced Payment, the Company shall cause to be taken into account all applicable federal, state and local income and employment taxes and the Excise Tax (all computed at the highest applicable marginal rate, net of the maximum reduction in federal income taxes which could be obtained from a deduction of such state and local taxes). If a Reduced Payment is made, (x) Executive shall have no rights to any additional payments and/or benefits constituting the Transaction Payment, and (y) reduction in payments and/or benefits shall occur in the manner that results in the greatest economic benefit to Executive as determined in this paragraph. If more than one method of reduction will result in the same economic benefit, the portions of the Transaction Payment shall be reduced pro rata. Unless Executive and the

Company otherwise agree in writing, any determination required under this Paragraph shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. Executive and the Company shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Paragraph. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Paragraph as well as any costs incurred by Executive with the Accountants for tax planning under Sections 280G and 4999 of the Code.

12. Proprietary Information Obligations.

12.1 Confidential Information Agreement. On or around March 21, 2018, Executive entered into that certain Employee Confidential Information and Inventions Assignment Agreement (the "**Confidentiality Agreement**"), which remains in full force and effect.

12.2 Third-Party Agreements and Information. Executive represents and warrants that Executive's employment by the Company does not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive's duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential information arising out of prior employment, consulting, or other third party relationships, that would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by Executive in the course of Executive's work for the Company.

13. Outside Activities During Employment.

13.1 Non-Company Business. Except with the prior written consent of the Board, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Executive may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of Executive's duties hereunder or present a conflict of interest with the Company.

13.2 No Adverse Interests. Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise.

14. Dispute Resolution. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or in equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, including but not limited to statutory claims, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16 and to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California, conducted by JAMS, Inc. ("**JAMS**") under the then applicable JAMS rules and procedures for employment disputes (available upon request and also currently available at <https://www.jamsadr.com/rules-employment-arbitration>). **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this Paragraph, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. This paragraph shall not apply to any action or claim that cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought in court pursuant to the California Private Attorneys General Act of 2004, as amended, the California Fair Employment and Housing Act, as amended, and the California Labor Code, as amended, to the extent such claims are not permitted by applicable law(s) to be submitted to mandatory arbitration and the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the "**Excluded Claims**"). In the event Executive intends to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of administration fees that would be required of Executive if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

15. General Provisions.

15.1 Notices. Any notices provided must be in writing and will be deemed effective upon the earlier of personal delivery (including personal delivery by fax) or the next day after sending by overnight carrier, to the Company at its primary office location and to Executive at the address as listed on the Company payroll.

15.2 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties insofar as possible under applicable law.

15.3 Waiver. Any waiver of any breach of any provisions of this Agreement, or rights hereunder, must be in writing to be effective, and shall not thereby be deemed to be a waiver of any preceding or succeeding breach or rights of the same or any other provision of this Agreement.

15.4 Complete Agreement / Representations. Executive acknowledges and agrees that Executive has been paid all compensation owed for all time worked for the Company, and other than the current payroll, has not earned and is not entitled to receive any other compensation or benefits from the Company other than as set forth in this Agreement. Executive further represents that Executive is not aware of any events or actions that have occurred during Executive's employment with the Company that would give rise to Executive's ability to resign Executive's employment for Good Reason under the Employment Agreement, or any other plan, policy or agreement. This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between Executive and the Company with regard to this subject matter and is the complete, final, and exclusive embodiment of the Parties' agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations (including without limitation the Employment Agreement, and any other employment terms, offer letter or employment agreement Executive may have entered into or discussed with the Company, and Executive further acknowledges and agrees that as of the Effective Date, Executive will no longer be eligible for, nor entitled to, any compensation or benefits under the Employment Agreement or any offer letter or agreement). This Agreement cannot be modified or amended except in a writing signed by a duly authorized officer of the Company.

15.5 Counterparts. This Agreement may be executed and delivered in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement, and delivery via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law)

or other transmission method and shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

15.6 Headings. The headings of the paragraphs hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

15.7 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of his duties hereunder and he may not assign any of his rights hereunder without the written consent of the Company, which shall not be withheld unreasonably.

15.8 Tax Withholding and Indemnification. All payments and awards contemplated or made pursuant to this Agreement will be subject to withholdings of applicable taxes in compliance with all relevant laws and regulations of all appropriate government authorities. Executive acknowledges and agrees that the Company has neither made any assurances nor any guarantees concerning the tax treatment of any payments or awards contemplated by or made pursuant to this Agreement. Executive has had the opportunity to retain a tax and financial advisor and fully understands the tax and economic consequences of all payments and awards made pursuant to the Agreement.

15.9 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the laws of the State of California without regard to conflicts of law principles.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Amended and Restated Executive Employment Agreement on the dates below.

ATRECA, INC.

By: /s/ Brian Atwood

Brian Atwood
Chairman of the Board

Date: 11/9/2020

EXECUTIVE

/s/ John A. Orwin

John A. Orwin
Chief Executive Officer

Date: 11/11/2020

ATRECA, INC.

AMENDED AND RESTATED EXECUTIVE EMPLOYMENT AGREEMENT
for
HERBERT CROSS

This Amended and Restated Executive Employment Agreement (the “**Agreement**”), made between Atreca, Inc. (the “**Company**”) and Herbert Cross (the “**Executive**”) (collectively, the “**Parties**”), is effective as of November 11, 2020 (the “**Effective Date**”).

WHEREAS, Executive and the Company previously entered into that certain Executive Employment Agreement, dated February 1, 2019 (the “**Employment Agreement**”) and also signed an offer letter with the Company dated February 1, 2019 (the “**Offer Letter**”), both of which have governed the terms and conditions of Executive’s employment with the Company to date;

WHEREAS, the Company desires for Executive to continue to provide services to the Company, and wishes to provide Executive with certain compensation and benefits in return for such services, as set forth in this Agreement;

WHEREAS, the Company and Executive acknowledge that Executive has served as Chief Financial Officer since on or around February 25, 2019 and Executive represents that he is not aware of any events or actions that have occurred since such date that would give rise to his resignation of employment for Good Reason (as defined and set forth below) as of the date he is executing this Agreement; and

WHEREAS, the Company and Executive desire to amend and restate the Employment Agreement and the Offer Letter such that this Agreement provides all of the terms and conditions of Executive’s continued employment with the Company as of the Effective Date; and

WHEREAS, Executive wishes to continue to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits, as set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereto agree that the Employment Agreement and the Offer Letter are amended, restated and superseded by this Agreement, and shall be of no further force or effect, and the Parties further agree as follows:

1. Employment by the Company.

1.1 Position. Executive shall continue to serve as the Company’s Chief Financial Officer. During the term of Executive’s employment with the Company, Executive will devote Executive’s best efforts and substantially all of Executive’s business

time and attention to the business of the Company, except for approved vacation periods and reasonable periods of illness or other incapacities permitted by the Company's general employment policies.

1.2 Duties and Location. Executive shall continue to perform such duties as are required by the Company's Chief Executive Officer, to whom Executive will report. Executive's primary office location shall be the Company's South San Francisco, California office. The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time, and to require reasonable business travel. The Company may modify Executive's job title and duties as it deems necessary and appropriate in light of the Company's needs and interests from time to time.

1.3 Policies and Procedures. The employment relationship between the Parties shall continue to be governed by the general employment policies and practices of the Company, as adopted or modified from time to time in the Company's discretion, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. Compensation.

2.1 Salary. For services to be rendered hereunder, Executive shall receive a base salary at the rate of four-hundred-five thousand six-hundred dollars (\$405,600.00) per year (the "**Base Salary**"), subject to standard payroll deductions and withholdings and payable in accordance with the Company's regular payroll schedule. As an exempt salaried employee, Executive will be required to work the Company's normal business hours, and such additional time as appropriate for Executive's work assignments and position, and Executive will not be entitled to overtime compensation.

2.2 Bonus. Executive will be eligible for an annual discretionary bonus of up to forty percent (40%) of Executive's Base Salary (the "**Annual Bonus**"), under the terms herein and in the Company's written bonus plan applicable to executives. Whether Executive receives an Annual Bonus for any given year, and the amount of any such Annual Bonus, will be determined by the Company's Board of Directors (the "**Board**"), the Compensation Committee of the Board, or the Chief Executive Officer (the "**CEO**"), as applicable, in its sole discretion, based upon the Company's and Executive's achievement of objectives to be determined on an annual basis by the Board, the Compensation Committee of the Board, or the CEO, as applicable. In order to earn and receive payment of an Annual Bonus (including a prorated Annual Bonus), Executive must be an active employee of the Company on the date that any such Annual Bonus is paid. Any such Annual Bonus will be paid no later than March 15 of the calendar year after the applicable bonus year.

3. Standard Company Benefits. Executive shall continue to be entitled to participate in all employee benefit programs for which Executive is eligible under the terms

and conditions of the benefit plans and applicable policies that may be in effect from time to time and provided by the Company to its employees. The Company reserves the right to cancel or change the benefit plans or programs it offers to its employees at any time. Additional information regarding these benefits is available upon request.

4. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

5. Equity. Any and all Equity Awards granted to Executive prior to the Effective Date will continue to be governed by the terms of the applicable stock option and equity incentive award plans or agreements and grant notices. For purposes of this Agreement, "**Equity Awards**" shall mean all stock options, restricted stock and restricted stock units and such other equity awards granted to Executive prior to, or after, the Effective Date pursuant to the Company's stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof.

6. At-Will Employment. Executive's employment relationship remains at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause (as defined below) or advance notice.

7. Termination of Employment.

7.1 Termination without Severance: Termination for Cause; Resignation Without Good Reason; Death or Disability. If Executive resigns his employment without Good Reason (as defined below), or the Company terminates Executive's employment for Cause (as defined below), or if Executive's employment terminates as a result of Executive's death or disability (each such termination referred to as a "**Non-Qualifying Termination**"), then (a) Executive will no longer vest in any Equity Awards, (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned), and (c) Executive will not be entitled to any Severance Benefits (as defined below). In addition, Executive shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination.

7.2 Termination with Severance: Termination Without Cause; Resignation for Good Reason. In the event Executive's employment with the Company is terminated by the Company without Cause (other than as a result of Executive's death or disability), or Executive resigns his employment for Good Reason (either such termination referred to as a "**Qualifying Termination**"), then, (i) provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a "**Separation from Service**"), and (ii) subject to Paragraph 8 ("Conditions to Receipt of Severance Benefits") and Executive's

continued compliance with the terms of this Agreement (including the Confidentiality Agreement), the Company shall provide Executive with severance benefits in accordance with the terms below (separately or collectively, the “**Severance Benefits**”):

(i) **Qualifying Termination not in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs at any time other than within the thirty (30)-day period prior to the closing of a Change in Control (as defined below) or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company: (a) the equivalent of nine (9) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**Cash Severance**”); and (b) the equivalent of nine (9) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**COBRA Severance**”). The Cash Severance and COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the COBRA Severance payment toward the cost of COBRA premiums.

(ii) **Qualifying Termination in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs within the thirty (30)-day period prior to the closing of a Change in Control or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company:

(a) **Severance.** The equivalent of: (i) twelve (12) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**CIC Cash Severance**”); and (ii) twelve (12) months (i.e., 1x) of Executive’s target Annual Bonus for the applicable bonus year in which the termination of employment occurs, subject to standard payroll deductions and withholdings (the “**Annual Bonus Severance**”); and (iii) twelve (12) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**CIC COBRA Severance**”). The CIC Cash Severance, Annual Bonus Severance, and CIC COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the CIC COBRA Severance payment toward the cost of COBRA premiums.

(b) **Accelerated Vesting.** As additional Severance Benefits: (i) vesting of Executive’s time-based vesting Equity Awards shall be accelerated such that one hundred percent (100%) of the shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive’s last

day of employment; and (ii) vesting of Executive's performance-based vesting Equity Awards shall be accelerated as if all performance goals were achieved at the 100% level of performance applicable to such awards, and such number of shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment.

8. Conditions to Receipt of Severance Benefits.

8.1 General Conditions. The receipt of the Severance Benefits, will be subject to Executive signing and not revoking a separation agreement and release of claims in a form reasonably satisfactory to the Company within sixty (60) days following the date of Executive's Separation from Service (the "**Separation Agreement**"). No Severance Benefits will be paid or provided until the Separation Agreement becomes effective. Executive shall also resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination. Furthermore, as a precondition to Executive's receipt of the Severance Benefits, on or within five (5) days after Executive's Separation from Service (or earlier if requested by the Company), Executive agrees to return to the Company all Company documents (and all copies thereof) and other Company property within Executive's possession, custody or control.

8.2 Clawback and Recovery. All Severance Benefits provided under this Agreement will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of common stock of the Company or other cash or property upon the occurrence of a termination of employment for Cause.

9. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

(i) Cause. For purposes of this Agreement, "**Cause**" for termination will mean: (a) commission of any felony or crime involving dishonesty; (b) participation in any fraud or embezzlement against the Company; (c) material breach of Executive's duties to the Company; (d) persistent unsatisfactory performance of job duties after written notice from the CEO and a reasonable opportunity to cure (if deemed curable); (e) intentional damage to any property of the Company; (f) misconduct, or other violation of Company policy that has caused, or is reasonably expected to result in, harm to the Company; (g) breach of any written agreement with the Company, including but not limited to this Agreement or the Confidentiality Agreement (as defined below); and (h) conduct by Executive which in the good faith and reasonable determination of the CEO demonstrates

gross unfitness to serve. The determination as to whether Executive is being terminated for Cause shall be made in good faith by the Company and shall be final and binding. The foregoing definition does not in any way limit the Company's ability to terminate Executive's employment at any time.

(ii) **Change in Control.** For purposes of this Agreement, "**Change in Control**" shall have the same meaning given it in the Company's 2019 Equity Incentive Plan, as may be amended or restated.

(iii) **Good Reason.** For purposes of this Agreement, Executive shall have "**Good Reason**" for resignation from employment with the Company if any of the following actions are taken by the Company without Executive's prior written consent: (a) a material reduction in Executive's Base Salary, which the parties agree is a reduction of at least ten percent (10%) of Executive's Base Salary (unless pursuant to a salary reduction program applicable generally to the Company's similarly situated employees); (b) a material reduction in Executive's duties (including responsibilities and/or authorities), *provided, however*, that a change in job position (including a change in title) shall not be deemed a "material reduction" in and of itself unless Executive's new duties are materially reduced from the prior duties; or (c) relocation of Executive's principal place of employment to a place that increases Executive's one-way commute by more than fifty (50) miles as compared to Executive's then-current principal place of employment immediately prior to such relocation. In order to resign his employment for Good Reason, Executive must provide written notice to the Company within thirty (30) days after the first occurrence of the event giving rise to Good Reason setting forth the basis for Executive's resignation, allow the Company at least thirty (30) days from receipt of such written notice to cure such event, and if such event is not reasonably cured within such period, Executive must resign from all positions Executive then holds with the Company not later than fifteen (15) days after the expiration of the cure period.

10. Section 409A. It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the Internal Revenue Code of 1986, as amended ("**Section 409A**") provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive's Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement

with the Company are deemed to be “deferred compensation”, then to the extent delayed commencement of any portion of such payments is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to Executive prior to the earliest of (i) the expiration of the six (6)-month period measured from the date of Executive’s Separation from Service with the Company, (ii) the date of Executive’s death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to Executive, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. **To the extent any payment under this Agreement may be classified as a “short-term deferral” within the meaning of Section 409A, such payment shall be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Except as otherwise expressly provided herein, to the extent any expense reimbursement or the provision of any in-kind benefit under this Agreement (or otherwise referenced herein) is determined to be subject to (and not exempt from) Section 409A of the Code, the amount of any such expenses eligible for reimbursement, or the provision of any in-kind benefit, in one calendar year shall not affect the expenses eligible for reimbursement or in kind benefits to be provided in any other calendar year, in no event shall any expenses be reimbursed after the last day of the calendar year following the calendar year in which Executive incurred such expenses, and in no event shall any right to reimbursement or the provision of any in-kind benefit be subject to liquidation or exchange for another benefit.**

11. Parachute Payments. If any payment or benefit (including payments and benefits pursuant to this Agreement) that Executive would receive in connection with a Change in Control from the Company or otherwise (“**Transaction Payment**”) would (i) constitute a “parachute payment” within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the “**Code**”) and (ii) but for this Paragraph, would be subject to the excise tax imposed by Section 4999 of the Code (the “**Excise Tax**”), then the Company shall cause to be determined, before any amounts of the Transaction Payment are paid to Executive, which of the following two alternative forms of payment would result in Executive’s receipt, on an after-tax basis, of the greater amount of the Transaction Payment notwithstanding that all or some portion of the Transaction Payment may be subject to the Excise Tax: (1) payment in full of the entire amount of the Transaction Payment (a “**Full Payment**”), or (2) payment of only a part of the Transaction Payment so that Executive receives the largest payment possible without the imposition of the Excise Tax (a “**Reduced Payment**”). For purposes of determining whether to make a Full Payment or a Reduced Payment, the Company shall cause to be taken into account all applicable federal, state and local income and employment taxes and the Excise Tax (all computed at the highest applicable marginal rate, net of the maximum reduction in federal income taxes which could be obtained from a deduction of such state and local taxes). If a Reduced Payment is made, (x) Executive shall have no rights to any additional payments and/or benefits constituting

the Transaction Payment, and (y) reduction in payments and/or benefits shall occur in the manner that results in the greatest economic benefit to Executive as determined in this paragraph. If more than one method of reduction will result in the same economic benefit, the portions of the Transaction Payment shall be reduced pro rata.

Unless Executive and the Company otherwise agree in writing, any determination required under this Paragraph shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. Executive and the Company shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Paragraph. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Paragraph as well as any costs incurred by Executive with the Accountants for tax planning under Sections 280G and 4999 of the Code.

12. Proprietary Information Obligations.

12.1 Confidential Information Agreement. On or around February 25, 2019, Executive entered into that certain Employee Confidential Information and Inventions Assignment Agreement (the "**Confidentiality Agreement**"), which remains in full force and effect.

12.2 Third-Party Agreements and Information. Executive represents and warrants that Executive's employment by the Company does not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive's duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential information arising out of prior employment, consulting, or other third party relationships, that would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by Executive in the course of Executive's work for the Company.

13. Outside Activities During Employment.

13.1 Non-Company Business. Except with the prior written consent of the CEO, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Executive may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of

Executive's duties hereunder or present a conflict of interest with the Company.

13.2 No Adverse Interests. Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise.

14. Dispute Resolution. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or in equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, including but not limited to statutory claims, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16 and to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California, conducted by JAMS, Inc. ("**JAMS**") under the then applicable JAMS rules and procedures for employment disputes (available upon request and also currently available at <https://www.jamsadr.com/rules-employment-arbitration>). **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this Paragraph, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. This paragraph shall not apply to any action or claim that cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought in court pursuant to the California Private Attorneys General Act of 2004, as amended, the California Fair Employment and Housing Act, as amended, and the California Labor Code, as amended, to the extent such claims are not permitted by applicable law(s) to be submitted to mandatory arbitration and the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the "**Excluded Claims**"). In the event Executive intends to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of administration fees that would be required of Executive if the dispute were decided in a court of law.

Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

15. General Provisions.

15.1 Notices. Any notices provided must be in writing and will be deemed effective upon the earlier of personal delivery (including personal delivery by fax) or the next day after sending by overnight carrier, to the Company at its primary office location and to Executive at the address as listed on the Company payroll.

15.2 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties insofar as possible under applicable law.

15.3 Waiver. Any waiver of any breach of any provisions of this Agreement, or rights hereunder, must be in writing to be effective, and shall not thereby be deemed to be a waiver of any preceding or succeeding breach or rights of the same or any other provision of this Agreement.

15.4 Complete Agreement / Representations. Executive acknowledges and agrees that Executive has been paid all compensation owed for all time worked for the Company, and other than the current payroll, has not earned and is not entitled to receive any other compensation or benefits from the Company other than as set forth in this Agreement. Executive further represents that Executive is not aware of any events or actions that have occurred during Executive's employment with the Company that would give rise to Executive's ability to resign Executive's employment for Good Reason under the Employment Agreement, Offer Letter, or any other plan, policy or agreement. This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between Executive and the Company with regard to this subject matter and is the complete, final, and exclusive embodiment of the Parties' agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations (including without limitation the Employment Agreement, the Offer Letter, and any other employment terms, offer letter or employment agreement Executive may have entered into or discussed with the Company, and Executive further acknowledges and agrees that as of the Effective Date, Executive will no longer be eligible for, nor entitled to, any compensation or benefits under the Employment Agreement or Offer Letter or any other offer letter or agreement). This Agreement cannot be modified or amended except in a writing signed by a duly authorized officer of the Company.

15.5 Counterparts. This Agreement may be executed and delivered in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement, and delivery via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

15.6 Headings. The headings of the paragraphs hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

15.7 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of his duties hereunder and he may not assign any of his rights hereunder without the written consent of the Company, which shall not be withheld unreasonably.

15.8 Tax Withholding and Indemnification. All payments and awards contemplated or made pursuant to this Agreement will be subject to withholdings of applicable taxes in compliance with all relevant laws and regulations of all appropriate government authorities. Executive acknowledges and agrees that the Company has neither made any assurances nor any guarantees concerning the tax treatment of any payments or awards contemplated by or made pursuant to this Agreement. Executive has had the opportunity to retain a tax and financial advisor and fully understands the tax and economic consequences of all payments and awards made pursuant to the Agreement.

15.9 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the laws of the State of California without regard to conflicts of law principles.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Amended and Restated Executive Employment Agreement on the dates below.

ATRECA, INC.

By: /s/ John A. Orwin

John A. Orwin
President & Chief Executive Officer

Date: 11/11/2020

EXECUTIVE

/s/ Herbert Cross

Herbert Cross
Chief Financial Officer

Date: 11/9/2020

ATRECA, INC.

AMENDED AND RESTATED EXECUTIVE EMPLOYMENT AGREEMENT
for
TITO SERAFINI

This Amended and Restated Executive Employment Agreement (the “**Agreement**”), made between Atreca, Inc. (the “**Company**”) and Tito Serafini (the “**Executive**”) (collectively, the “**Parties**”), is effective as of November 11, 2020 (the “**Effective Date**”).

WHEREAS, Executive and the Company previously entered into that certain Executive Employment Agreement, dated June 26, 2018 (the “**Employment Agreement**”) which has governed the terms and conditions of Executive’s employment with the Company to date;

WHEREAS, the Company desires for Executive to continue to provide services to the Company, and wishes to provide Executive with certain compensation and benefits in return for such services, as set forth in this Agreement;

WHEREAS, the Company and Executive acknowledge that Executive has served as Chief Strategy Officer since on or around April 16, 2018 and Executive represents that he is not aware of any events or actions that have occurred since such date that would give rise to his resignation of employment for Good Reason (as defined and set forth below) as of the date he is executing this Agreement; and

WHEREAS, the Company and Executive desire to amend and restate the Employment Agreement such that this Agreement provides all of the terms and conditions of Executive’s continued employment with the Company as of the Effective Date; and

WHEREAS, Executive wishes to continue to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits, as set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereto agree that the Employment Agreement is amended, restated and superseded by this Agreement, and shall be of no further force or effect, and the Parties further agree as follows:

1. Employment by the Company.

1.1 Position. Executive shall continue to serve as the Company’s Chief Strategy Officer. During the term of Executive’s employment with the Company, Executive will devote Executive’s best efforts and substantially all of Executive’s business time and

attention to the business of the Company, except for approved vacation periods and reasonable periods of illness or other incapacities permitted by the Company's general employment policies.

1.2 Duties and Location. As Chief Strategy Officer Executive shall be directly responsible for oversight regarding research, preclinical development, technology, and will have input on intellectual property, have key involvement in certain outward-facing activities, such as with respect to fundraising and business development, and shall continue to perform such other duties of at least equivalent level as are required by the Company's Chief Executive Officer, to whom Executive will report. Executive's primary office location shall be the Company's South San Francisco, California office. The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time, and to require reasonable business travel. The Company may modify Executive's job title and duties as it deems necessary and appropriate in light of the Company's needs and interests from time to time, subject to Section 7.

1.3 Policies and Procedures. The employment relationship between the Parties shall continue to be governed by the general employment policies and practices of the Company, as adopted or modified from time to time in the Company's discretion, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. Compensation.

2.1 Salary. For services to be rendered hereunder, Executive shall receive a base salary at the rate of four-hundred-fifty-six thousand seven-hundred-fifty dollars (\$456,750.00) per year (the "**Base Salary**"), subject to standard payroll deductions and withholdings and payable in accordance with the Company's regular payroll schedule. As an exempt salaried employee, Executive will be required to work the Company's normal business hours, and such additional time as appropriate for Executive's work assignments and position, and Executive will not be entitled to overtime compensation.

2.2 Bonus. Executive will be eligible for an annual discretionary bonus of up to forty percent (40%) of Executive's Base Salary (the "**Annual Bonus**"), under the terms herein and in the Company's written bonus plan applicable to executives. Whether Executive receives an Annual Bonus for any given year, and the amount of any such Annual Bonus, will be determined by the Company's Board of Directors (the "**Board**"), the Compensation Committee of the Board, or the Chief Executive Officer (the "**CEO**"), as applicable, in its sole discretion, based upon the Company's and Executive's achievement of objectives to be determined on an annual basis by the Board, the Compensation Committee of the Board, or the CEO, as applicable. In order to earn and receive payment of an Annual Bonus (including a prorated Annual Bonus), Executive must be an active

employee of the Company on the date that any such Annual Bonus is paid. Any such Annual Bonus will be paid no later than March 15 of the calendar year after the applicable bonus year.

3. Standard Company Benefits. Executive shall continue to be entitled to participate in all employee benefit programs for which Executive is eligible under the terms and conditions of the benefit plans and applicable policies that may be in effect from time to time and provided by the Company to its employees. The Company reserves the right to cancel or change the benefit plans or programs it offers to its employees at any time. Additional information regarding these benefits is available upon request.

4. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

5. Equity. Any and all Equity Awards granted to Executive prior to the Effective Date will continue to be governed by the terms of the applicable stock option and equity incentive award plans or agreements and grant notices. For purposes of this Agreement, "**Equity Awards**" shall mean all stock options, restricted stock and restricted stock units and such other equity awards granted to Executive prior to, or after, the Effective Date pursuant to the Company's stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof.

6. At-Will Employment. Executive's employment relationship remains at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause (as defined below) or advance notice.

7. Termination of Employment.

7.1 Termination without Severance:

(i) Termination for Cause; Death or Disability. If the Company terminates Executive's employment for Cause, or if Executive's employment terminates as a result of Executive's death or disability, then (a) Executive will no longer vest in any Equity Awards, (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned), (c) Executive will not be entitled to any Severance Benefits (as defined below), and (d) Executive shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination.

(ii) Resignation Without Good Reason. If Executive resigns his employment without Good Reason (as defined below), then (a) Executive will no longer vest in any Equity Awards (other than in connection with any continued Board membership, if applicable), (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned and amounts relating to non-employee director compensation that may be provided in connection with any continued Board membership, if applicable), and (c) Executive will not be entitled to any Severance Benefits.

7.2 Termination with Severance: Termination Without Cause; Resignation for Good Reason. In the event Executive's employment with the Company is terminated by the Company without Cause (other than as a result of Executive's death or disability), or Executive resigns his employment for Good Reason (either such termination referred to as a "**Qualifying Termination**"), then, (i) provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a "**Separation from Service**"), and (ii) subject to Paragraph 8 ("**Conditions to Receipt of Severance Benefits**") and Executive's continued compliance with the terms of this Agreement (including the Confidentiality Agreement), the Company shall provide Executive with severance benefits in accordance with the terms below (separately or collectively, the "**Severance Benefits**"):

(i) Qualifying Termination not in Connection with a Change in Control. In the event of a Qualifying Termination that occurs at any time other than within the sixty (60)-day period prior to the closing of a Change in Control (as defined below) or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company:

(a) Severance. The equivalent of nine (9) months of Executive's Base Salary in effect as of the date of Executive's employment termination, subject to standard payroll deductions and withholdings (the "**Cash Severance**"); and (b) the equivalent of nine (9) months of the cost of Executive's COBRA premiums needed to continue Executive's medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the "**COBRA Severance**"). The Cash Severance and COBRA Severance will be paid in a lump sum within sixty (60) days following Executive's Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the COBRA Severance payment toward the cost of COBRA premiums.

(b) Accelerated Vesting. As additional Severance Benefits: (i) vesting of Executive's time-based vesting Equity Awards shall be accelerated such that one hundred percent (100%) of the shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last

day of employment; and (ii) vesting of Executive's performance-based vesting Equity Awards shall be accelerated as if all performance goals were achieved at the 100% level of performance applicable to such awards, and such number of shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment.

(ii) Qualifying Termination in Connection with a Change in Control. In the event of a Qualifying Termination that occurs within the sixty (60)-day period prior to the closing of a Change in Control or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company:

(a) Severance. The equivalent of: (i) twelve (12) months of Executive's Base Salary in effect as of the date of Executive's employment termination, subject to standard payroll deductions and withholdings (the "**CIC Cash Severance**"); and (ii) twelve (12) months (i.e., 1x) of Executive's target Annual Bonus for the applicable bonus year in which the termination of employment occurs, subject to standard payroll deductions and withholdings (the "**Annual Bonus Severance**"); and (iii) twelve (12) months of the cost of Executive's COBRA premiums needed to continue Executive's medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the "**CIC COBRA Severance**"). The CIC Cash Severance, Annual Bonus Severance, and CIC COBRA Severance will be paid in a lump sum within sixty (60) days following Executive's Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the CIC COBRA Severance payment toward the cost of COBRA premiums.

(b) Accelerated Vesting. As additional Severance Benefits: (i) vesting of Executive's time-based vesting Equity Awards shall be accelerated such that one hundred percent (100%) of the shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment; and (ii) vesting of Executive's performance-based vesting Equity Awards shall be accelerated as if all performance goals were achieved at the 100% level of performance applicable to such awards, and such number of shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment.

8. Conditions to Receipt of Severance Benefits.

8.1 General Conditions. The receipt of the Severance Benefits, will be subject to Executive signing and not revoking a separation agreement and release of claims in substantially the form attached hereto as Exhibit A within sixty (60) days following the date of Executive's Separation from Service (the "**Separation Agreement**"), as

countersigned by the Company. No Severance Benefits will be paid or provided until the Separation Agreement becomes effective. Furthermore, as preconditions to Executive's receipt of any Severance Benefits, as of the date the Separation Agreement becomes effective: (i) Executive will return to the Company all Company documents (and all copies thereof) and other Company property within Executive's possession, custody or control, and (ii) only if so requested by the Board, Executive shall also resign from and terminate any relationships as an advisor and director and any and all other positions Executive holds with the Company and any of its affiliates.

8.2 Clawback and Recovery. All Severance Benefits provided under this Agreement will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of common stock of the Company or other cash or property upon the occurrence of a termination of employment for Cause.

9. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

(i) Cause. For purposes of this Agreement, "**Cause**" for termination will mean any of the following conditions which is not cured, if curable, by Executive within thirty (30) days after receipt of written notice from the Company specifying the claimed grounds for Cause: (a) commission of any felony or crime involving dishonesty; (b) willful participation in any fraud against the Company; (c) willful breach of Executive's material duties to the Company; (d) willful and material damage to any property of the Company; (e) willful misconduct or other violation of Company policy that causes material harm to the Company; (f) willful and material breach of any written agreement with the Company; and (g) willful conduct by Executive which in the good faith and reasonable determination of the Board demonstrates gross unfitness to serve. The determination as to whether Executive is being terminated for Cause shall be made in good faith by the Company. The foregoing definition does not in any way limit the Company's ability to terminate Executive's employment at any time.

(ii) Change in Control. For purposes of this Agreement, "**Change in Control**" shall have the same meaning given it in the Company's 2019 Equity Incentive Plan, as may be amended or restated.

(iii) Good Reason. For purposes of this Agreement, Executive shall have "**Good Reason**" for resignation from employment with the Company if any of the following

actions are taken by the Company without Executive's prior written consent: (a) a material reduction in Executive's Base Salary, which the parties agree is a reduction of at least ten percent (10%) of Executive's Base Salary (unless pursuant to a salary reduction program applicable generally to the Company's similarly situated employees); (b) a material reduction in Executive's duties (including responsibilities and/or authorities), *provided, however*, that a change in job position (including a change in title) shall not be deemed a "material reduction" in and of itself unless Executive's new duties are materially reduced from the prior duties; (c) a material breach by the Company of any written agreement between Executive and the Company; or (d) relocation of Executive's principal place of employment to a place that increases Executive's one-way commute by more than fifty (50) miles as compared to Executive's then-current principal place of employment immediately prior to such relocation. In order to resign his employment for Good Reason, Executive must provide written notice to the Company's CEO within forty-five (45) days after the first occurrence of the event giving rise to Good Reason setting forth the basis for Executive's resignation, allow the Company at least forty-five (45) days from receipt of such written notice to cure such event, and if such event is not reasonably cured within such period, Executive must resign from all employment and officer positions Executive then holds with the Company not later than fifteen (15) days after the expiration of the cure period. In connection with any resignation for Good Reason, Executive shall also resign from and terminate any relationships as an advisor and director and any and all other positions Executive holds with the Company and any of its affiliates, if so requested by the Board.

(iv) Willful. For purposes of this Agreement, no act or failure to act on Executive's part shall be considered "willful" unless it is done, or omitted to be done, by Executive intentionally, in bad faith or without reasonable belief that the action or omission was in the best interests of the Company.

10. Section 409A. It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the Internal Revenue Code of 1986, as amended ("**Section 409A**") provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive's Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement

with the Company are deemed to be “deferred compensation”, then to the extent delayed commencement of any portion of such payments is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to Executive prior to the earliest of (i) the expiration of the six (6)-month period measured from the date of Executive’s Separation from Service with the Company, (ii) the date of Executive’s death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to Executive, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. **To the extent any payment under this Agreement may be classified as a “short-term deferral” within the meaning of Section 409A, such payment shall be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Except as otherwise expressly provided herein, to the extent any expense reimbursement or the provision of any in-kind benefit under this Agreement (or otherwise referenced herein) is determined to be subject to (and not exempt from) Section 409A of the Code, the amount of any such expenses eligible for reimbursement, or the provision of any in-kind benefit, in one calendar year shall not affect the expenses eligible for reimbursement or in kind benefits to be provided in any other calendar year, in no event shall any expenses be reimbursed after the last day of the calendar year following the calendar year in which Executive incurred such expenses, and in no event shall any right to reimbursement or the provision of any in-kind benefit be subject to liquidation or exchange for another benefit.**

11. Parachute Payments. If any payment or benefit (including payments and benefits pursuant to this Agreement) that Executive would receive in connection with a Change in Control from the Company or otherwise (“**Transaction Payment**”) would (i) constitute a “parachute payment” within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the “**Code**”) and (ii) but for this Paragraph, would be subject to the excise tax imposed by Section 4999 of the Code (the “**Excise Tax**”), then the Company shall cause to be determined, before any amounts of the Transaction Payment are paid to Executive, which of the following two alternative forms of payment would result in Executive’s receipt, on an after-tax basis, of the greater amount of the Transaction Payment notwithstanding that all or some portion of the Transaction Payment may be subject to the Excise Tax: (1) payment in full of the entire amount of the Transaction Payment (a “**Full Payment**”), or (2) payment of only a part of the Transaction Payment so that Executive receives the largest payment possible without the imposition of the Excise Tax (a “**Reduced Payment**”). For purposes of determining whether to make a Full Payment or a Reduced Payment, the Company shall cause to be taken into account all applicable federal, state and local income and employment taxes and the Excise Tax (all computed at the highest applicable marginal rate, net of the maximum reduction in federal income taxes which could

be obtained from a deduction of such state and local taxes). If a Reduced Payment is made, (x) Executive shall have no rights to any additional payments and/or benefits constituting the Transaction Payment, and (y) reduction in payments and/or benefits shall occur in the manner that results in the greatest economic benefit to Executive as determined in this paragraph. If more than one method of reduction will result in the same economic benefit, the portions of the Transaction Payment shall be reduced pro rata. Unless Executive and the Company otherwise agree in writing, any determination required under this Paragraph shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. Executive and the Company shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Paragraph. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Paragraph as well as any costs incurred by Executive with the Accountants for tax planning under Sections 280G and 4999 of the Code.

12. Proprietary Information Obligations.

12.1 Confidential Information Agreement. On or around April 17, 2012, Executive entered into that certain Employee Confidential Information and Inventions Assignment Agreement (the "**Confidentiality Agreement**"), which remains in full force and effect.

12.2 Third-Party Agreements and Information. Executive represents and warrants that Executive's employment by the Company does not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive's duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential information arising out of prior employment, consulting, or other third party relationships, that would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by Executive in the course of Executive's work for the Company.

13. Outside Activities During Employment.

13.1 Non-Company Business. Except with the prior written consent of

the CEO, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Executive may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of Executive's duties hereunder or present a conflict of interest with the Company.

13.2 No Adverse Interests. Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise.

14. Dispute Resolution. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or in equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, including but not limited to statutory claims, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16 and to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California, conducted by JAMS, Inc. ("**JAMS**") under the then applicable JAMS rules and procedures for employment disputes (available upon request and also currently available at <https://www.jamsadr.com/rules-employment-arbitration>). **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this Paragraph, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. This paragraph shall not apply to any action or claim that cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought in court pursuant to the California Private Attorneys General Act of 2004, as amended, the California Fair Employment and Housing Act, as amended, and the California Labor Code, as amended, to the extent such claims are not permitted by applicable law(s) to be submitted to mandatory arbitration and the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the "**Excluded Claims**"). In the event Executive intends to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall: (a) have the authority to compel adequate discovery for the

resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of administration fees that would be required of Executive if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

15. General Provisions.

15.1 Notices. Any notices provided must be in writing and will be deemed effective upon the earlier of personal delivery (including personal delivery by fax) or the next day after sending by overnight carrier, to the Company at its primary office location and to Executive at the address as listed on the Company payroll.

15.2 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties insofar as possible under applicable law.

15.3 Waiver. Any waiver of any breach of any provisions of this Agreement, or rights hereunder, must be in writing to be effective, and shall not thereby be deemed to be a waiver of any preceding or succeeding breach or rights of the same or any other provision of this Agreement.

15.4 Complete Agreement / Representations. Executive acknowledges and agrees that Executive has been paid all compensation owed for all time worked for the Company, and other than the current payroll, has not earned and is not entitled to receive any other compensation or benefits from the Company other than as set forth in this Agreement. Executive further represents that Executive is not aware of any events or actions that have occurred during Executive's employment with the Company that would give rise to Executive's ability to resign Executive's employment for Good Reason under the Employment Agreement, or any other plan, policy or agreement. This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between Executive and the Company with regard to this subject matter and is the complete, final, and exclusive embodiment of the Parties' agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than

those expressly contained herein, and it supersedes any other such promises, warranties or representations (including without limitation the Employment Agreement, and any other employment terms, offer letter or employment agreement Executive may have entered into or discussed with the Company, and Executive further acknowledges and agrees that as of the Effective Date, Executive will no longer be eligible for, nor entitled to, any compensation or benefits under the Employment Agreement or any offer letter or agreement). This Agreement cannot be modified or amended except in a writing signed by a duly authorized officer of the Company.

15.5 Counterparts. This Agreement may be executed and delivered in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement, and delivery via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

15.6 Headings. The headings of the paragraphs hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

15.7 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of his duties hereunder and he may not assign any of his rights hereunder without the written consent of the Company, which shall not be withheld unreasonably.

15.8 Tax Withholding and Indemnification. All payments and awards contemplated or made pursuant to this Agreement will be subject to withholdings of applicable taxes in compliance with all relevant laws and regulations of all appropriate government authorities. Executive acknowledges and agrees that the Company has neither made any assurances nor any guarantees concerning the tax treatment of any payments or awards contemplated by or made pursuant to this Agreement. Executive has had the opportunity to retain a tax and financial advisor and fully understands the tax and economic consequences of all payments and awards made pursuant to the Agreement.

15.9 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the laws of the State of California without regard to conflicts of law principles.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Amended and Restated Executive Employment Agreement on the dates below.

ATRECA, INC.

By: /s/ John A. Orwin

John A. Orwin
President & Chief Executive Officer

Date: 11/11/2020

EXECUTIVE

/s/ Tito Serafini

Tito Serafini
Chief Strategy Officer

Date: 11/10/2020

EXHIBIT A

FORM OF SEPARATION AGREEMENT

In exchange for the severance benefits to be provided to me, Tito Serafini, by Atreca, Inc. (the “**Company**”) pursuant to my Amended and Restated Executive Employment Agreement with the Company (the “**Employment Agreement**”), and the Company’s agreement therein and herein, I hereby provide the following release under this Form of Separation Agreement (the “**Release**”).

I hereby generally and completely release the Company and its parents, subsidiaries, successors, predecessors, and affiliates, and each of their respective current and former directors, officers, employees, stockholders, shareholders, agents, attorneys, insurers, and assigns, from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring at any time prior to and including the date I sign this Release. This general release includes, but is not limited to: (a) all claims arising out of or in any way related to my employment or the termination of that employment; (b) all claims related to my compensation or benefits, including salary, bonuses, commissions, vacation pay, paid time off, expense reimbursements, severance pay, fringe benefits, stock, stock options, or any other ownership interests; (c) all claims for breach of contract, wrongful termination, and breach of the implied covenant of good faith and fair dealing; (d) all tort claims, including claims for fraud, defamation, emotional distress, and discharge in violation of public policy; and (e) all federal, state, provincial and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys’ fees, or other claims arising under the federal Civil Rights Act of 1964 (as amended), the federal Americans with Disabilities Act of 1990 (as amended), the federal Employee Retirement Income Security Act of 1974 (as amended), and the California Fair Employment and Housing Act (as amended).

Notwithstanding the foregoing, I understand that the following claims are not included in my release: (a) any rights or claims for indemnification I may have pursuant to any written indemnification agreement; the charter, bylaws, or operating agreements of the Company; or under applicable law; (b) any rights that I may have to insurance coverage under any directors or officers liability insurance, other insurance policies of the Company, COBRA or any similar state law; (c) any claims for workers’ compensation, state disability or unemployment insurance benefits; (d) any continuing rights I may have after the date I sign this Release as a shareholder of the Company; (e) any rights which cannot be waived as a matter of law; (f) rights to any vested benefits or other vested compensation; or (g) any claims arising after the date I sign this Release.

I acknowledge that I am knowingly and voluntarily waiving and releasing any rights I may have under the federal Age Discrimination in Employment Act (as amended) (“**ADEA**”), and that the consideration for the waiver and release in the preceding paragraph

hereof is in addition to anything of value to which I was already entitled. I further acknowledge that I have been advised by this writing, as required by the ADEA, that: (a) my waiver and release do not apply to any rights or claims that may arise after the date I sign this Release; (b) I should consult with an attorney prior to signing this Release (although I may choose voluntarily not to do so); (c) I have 21 days to consider this Release (although I may choose voluntarily to sign this Release earlier); (d) I have seven days following the date I sign this Release to revoke it by providing written notice to the Board of Directors; and (e) this Release will not be effective until the date upon which the revocation period has expired, which will be the eighth day after I sign this Release.

By signing this Release, the Company hereby releases me, and my respective agents, attorneys, representatives and assigns, from any and all claims, liabilities, or obligations of every kind and nature, whether they are known or unknown, arising out of, or in any way related to, events, acts, conduct, or omissions that occurred prior to or on the date the Company signs this Release; **provided, however**, that the Company's release herein shall not extend to claims arising from any of my contractual or statutory obligations to refrain from the use or disclosure of proprietary or trade secret information belonging to the Company; nor to any claims arising from my willful misconduct or breach of fiduciary or other duties owed to the Company that caused material injury to the Company.

I and the Company acknowledge having read and understood Section 1542 of the California Civil Code which reads as follows: **"A general release does not extend to claims which the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."** I and the Company hereby expressly waive and relinquish all rights and benefits under that section and any law of any jurisdiction of similar effect with respect to our respective releases of any claims hereunder.

Nothing in this Release or the Agreement shall prevent me from filing a charge or complaint with the Equal Employment Opportunity Commission, the Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal, state or local governmental agency or commission ("**Government Agencies**"), nor from communicating with any Government Agencies or otherwise participating in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. However, I understand and agree that, to the maximum extent permitted by law, I am otherwise waiving any and all rights I may have to individual relief based on any claims I have released and any rights I have waived by signing this Release, *provided that* this Release does not limit my right to receive any award for information provided to the Securities and Exchange Commission.

I hereby represent that I have been paid all compensation owed and for all hours worked; I have received all the leave and leave benefits and protections for which I am eligible pursuant to the Family and Medical Leave Act, the California Family Rights Act, or otherwise; and I have not suffered any on-the-job injury for which I have not already filed a workers' compensation claim. I further acknowledge that, other than the severance benefits that will be provided to me pursuant to the Employment Agreement upon the effectiveness of this release, among other required conditions, I have not earned and will not receive from the Company any additional compensation, severance, or benefits, with the exception of any vested right I may have under the express terms of a written ERISA-qualified benefit plan (e.g., 401(k) account) or any continued equity vesting benefits or non-employee director compensation that may be provided in connection with any continued Board membership after my employment separation date, if applicable.

I further acknowledge my continuing obligations under my Employee Confidential Information and Inventions Assignment Agreement.

I hereby agree not to disparage the Company or any of its officers, directors, employees, shareholders, and agents, in any manner likely to be harmful to its or their business, business reputations or personal reputations; provided that I may respond accurately and fully to any question, inquiry or request for information when required by the legal process or in connection with a government investigation. In addition, nothing in this release is intended to prohibit or restrain me in any manner from making disclosures that are protected under the whistleblower provisions of federal law or regulation or under other applicable law or regulation.

I acknowledge that to become effective, I must sign and return this Release to the Company so that it is received not later than 21 days following the date it is provided to me, and not revoke it.

ATRECA, INC.

TITO SERAFINI, PH.D.

By: _____

Name: _____

(Signature)

Title: _____

Date: _____

Date: _____

ATRECA, INC.

AMENDED AND RESTATED EXECUTIVE EMPLOYMENT AGREEMENT
for
LISA LYNN DECKER

This Amended and Restated Executive Employment Agreement (the “**Agreement**”), made between Atreca, Inc. (the “**Company**”) and Lisa Lynn Decker (the “**Executive**”) (collectively, the “**Parties**”), is effective as of November 11, 2020 (the “**Effective Date**”).

WHEREAS, Executive and the Company previously entered into that certain Executive Employment Agreement, dated June 17, 2019 (the “**Employment Agreement**”) and also signed an offer letter with the Company dated May 28, 2019 (the “**Offer Letter**”), both of which have governed the terms and conditions of Executive’s employment with the Company to date;

WHEREAS, the Company desires for Executive to continue to provide services to the Company, and wishes to provide Executive with certain compensation and benefits in return for such services, as set forth in this Agreement;

WHEREAS, the Company and Executive acknowledge that Executive has served as Chief Business Officer since on or around June 17, 2019 and Executive represents that she is not aware of any events or actions that have occurred since such date that would give rise to her resignation of employment for Good Reason (as defined and set forth below) as of the date she is executing this Agreement; and

WHEREAS, the Company and Executive desire to amend and restate the Employment Agreement and the Offer Letter such that this Agreement provides all of the terms and conditions of Executive’s continued employment with the Company as of the Effective Date; and

WHEREAS, Executive wishes to continue to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits, as set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereto agree that the Employment Agreement and the Offer Letter are amended, restated and superseded by this Agreement, and shall be of no further force or effect, and the Parties further agree as follows:

1. Employment by the Company.

1.1 Position. Executive shall continue to serve as the Company’s Chief Business Officer. During the term of Executive’s employment with the Company, Executive will devote Executive’s best efforts and substantially all of Executive’s business time and

attention to the business of the Company, except for approved vacation periods and reasonable periods of illness or other incapacities permitted by the Company's general employment policies.

1.2 Duties and Location. Executive shall continue to perform such duties as are required by the Company's Chief Executive Officer, to whom Executive will report. Executive's primary office location shall be the Company's South San Francisco, California office. The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time, and to require reasonable business travel. The Company may modify Executive's job title and duties as it deems necessary and appropriate in light of the Company's needs and interests from time to time.

1.3 Policies and Procedures. The employment relationship between the Parties shall continue to be governed by the general employment policies and practices of the Company, as adopted or modified from time to time in the Company's discretion, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. Compensation.

2.1 Salary. For services to be rendered hereunder, Executive shall receive a base salary at the rate of four-hundred-one thousand seven-hundred dollars (\$401,700.00) per year (the "**Base Salary**"), subject to standard payroll deductions and withholdings and payable in accordance with the Company's regular payroll schedule. As an exempt salaried employee, Executive will be required to work the Company's normal business hours, and such additional time as appropriate for Executive's work assignments and position, and Executive will not be entitled to overtime compensation.

2.2 Bonus. Executive will be eligible for an annual discretionary bonus of up to forty percent (40%) of Executive's Base Salary (the "**Annual Bonus**"), under the terms herein and in the Company's written bonus plan applicable to executives. Whether Executive receives an Annual Bonus for any given year, and the amount of any such Annual Bonus, will be determined by the Company's Board of Directors (the "**Board**"), the Compensation Committee of the Board, or the Chief Executive Officer (the "**CEO**"), as applicable, in its sole discretion, based upon the Company's and Executive's achievement of objectives to be determined on an annual basis by the Board, the Compensation Committee of the Board, or the CEO, as applicable. In order to earn and receive payment of an Annual Bonus (including a prorated Annual Bonus), Executive must be an active employee of the Company on the date that any such Annual Bonus is paid. Any such Annual Bonus will be paid no later than March 15 of the calendar year after the applicable bonus year.

3. Standard Company Benefits. Executive shall continue to be entitled to participate in all employee benefit programs for which Executive is eligible under the terms

and conditions of the benefit plans and applicable policies that may be in effect from time to time and provided by the Company to its employees. The Company reserves the right to cancel or change the benefit plans or programs it offers to its employees at any time. Additional information regarding these benefits is available upon request.

4. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

5. Equity. Any and all Equity Awards granted to Executive prior to the Effective Date will continue to be governed by the terms of the applicable stock option and equity incentive award plans or agreements and grant notices. For purposes of this Agreement, "**Equity Awards**" shall mean all stock options, restricted stock and restricted stock units and such other equity awards granted to Executive prior to, or after, the Effective Date pursuant to the Company's stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof.

6. At-Will Employment. Executive's employment relationship remains at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause (as defined below) or advance notice.

7. Termination of Employment.

7.1 Termination without Severance: Termination for Cause; Resignation Without Good Reason; Death or Disability. If Executive resigns her employment without Good Reason (as defined below), or the Company terminates Executive's employment for Cause (as defined below), or if Executive's employment terminates as a result of Executive's death or disability (each such termination referred to as a "**Non-Qualifying Termination**"), then (a) Executive will no longer vest in any Equity Awards, (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned), and (c) Executive will not be entitled to any Severance Benefits (as defined below). In addition, Executive shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination.

7.2 Termination with Severance: Termination Without Cause; Resignation for Good Reason. In the event Executive's employment with the Company is terminated by the Company without Cause (other than as a result of Executive's death or disability), or Executive resigns her employment for Good Reason (either such termination referred to as a "**Qualifying Termination**"), then, (i) provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a "**Separation from Service**"), and (ii) subject to Paragraph 8 ("**Conditions to Receipt of Severance Benefits**") and Executive's

continued compliance with the terms of this Agreement (including the Confidentiality Agreement), the Company shall provide Executive with severance benefits in accordance with the terms below (separately or collectively, the “**Severance Benefits**”):

(i) **Qualifying Termination not in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs at any time other than within the thirty (30)-day period prior to the closing of a Change in Control (as defined below) or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company: (a) the equivalent of nine (9) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**Cash Severance**”); and (b) the equivalent of nine (9) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**COBRA Severance**”). The Cash Severance and COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the COBRA Severance payment toward the cost of COBRA premiums.

(ii) **Qualifying Termination in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs within the thirty (30)-day period prior to the closing of a Change in Control or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company:

(a) **Severance.** The equivalent of: (i) twelve (12) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**CIC Cash Severance**”); and (ii) twelve (12) months (i.e., 1x) of Executive’s target Annual Bonus for the applicable bonus year in which the termination of employment occurs, subject to standard payroll deductions and withholdings (the “**Annual Bonus Severance**”); and (iii) twelve (12) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**CIC COBRA Severance**”). The CIC Cash Severance, Annual Bonus Severance, and CIC COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the CIC COBRA Severance payment toward the cost of COBRA premiums.

(b) **Accelerated Vesting.** As additional Severance Benefits: (i) vesting of Executive’s time-based vesting Equity Awards shall be accelerated such that one hundred percent (100%) of the shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive’s last

day of employment; and (ii) vesting of Executive's performance-based vesting Equity Awards shall be accelerated as if all performance goals were achieved at the 100% level of performance applicable to such awards, and such number of shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment.

8. Conditions to Receipt of Severance Benefits.

8.1 General Conditions. The receipt of the Severance Benefits, will be subject to Executive signing and not revoking a separation agreement and release of claims in a form reasonably satisfactory to the Company within sixty (60) days following the date of Executive's Separation from Service (the "**Separation Agreement**"). No Severance Benefits will be paid or provided until the Separation Agreement becomes effective. Executive shall also resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination. Furthermore, as a precondition to Executive's receipt of the Severance Benefits, on or within five (5) days after Executive's Separation from Service (or earlier if requested by the Company), Executive agrees to return to the Company all Company documents (and all copies thereof) and other Company property within Executive's possession, custody or control.

8.2 Clawback and Recovery. All Severance Benefits provided under this Agreement will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of common stock of the Company or other cash or property upon the occurrence of a termination of employment for Cause.

9. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

(i) Cause. For purposes of this Agreement, "**Cause**" for termination will mean: (a) commission of any felony or crime involving dishonesty; (b) participation in any fraud or embezzlement against the Company; (c) material breach of Executive's duties to the Company; (d) persistent unsatisfactory performance of job duties after written notice from the CEO and a reasonable opportunity to cure (if deemed curable); (e) intentional damage to any property of the Company; (f) misconduct, or other violation of Company policy that has caused, or is reasonably expected to result in, harm to the Company; (g) breach of any written agreement with the Company, including but not limited to this Agreement or the Confidentiality Agreement (as defined below); and (h) conduct by Executive which in the good faith and reasonable determination of the CEO demonstrates

gross unfitness to serve. The determination as to whether Executive is being terminated for Cause shall be made in good faith by the Company and shall be final and binding. The foregoing definition does not in any way limit the Company's ability to terminate Executive's employment at any time.

(ii) **Change in Control.** For purposes of this Agreement, "**Change in Control**" shall have the same meaning given it in the Company's 2019 Equity Incentive Plan, as may be amended or restated.

(iii) **Good Reason.** For purposes of this Agreement, Executive shall have "**Good Reason**" for resignation from employment with the Company if any of the following actions are taken by the Company without Executive's prior written consent: (a) a material reduction in Executive's Base Salary, which the parties agree is a reduction of at least ten percent (10%) of Executive's Base Salary (unless pursuant to a salary reduction program applicable generally to the Company's similarly situated employees); (b) a material reduction in Executive's duties (including responsibilities and/or authorities), *provided, however*, that a change in job position (including a change in title) shall not be deemed a "material reduction" in and of itself unless Executive's new duties are materially reduced from the prior duties; or (c) relocation of Executive's principal place of employment to a place that increases Executive's one-way commute by more than fifty (50) miles as compared to Executive's then-current principal place of employment immediately prior to such relocation. In order to resign her employment for Good Reason, Executive must provide written notice to the Company within thirty (30) days after the first occurrence of the event giving rise to Good Reason setting forth the basis for Executive's resignation, allow the Company at least thirty (30) days from receipt of such written notice to cure such event, and if such event is not reasonably cured within such period, Executive must resign from all positions Executive then holds with the Company not later than fifteen (15) days after the expiration of the cure period.

10. Section 409A. It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the Internal Revenue Code of 1986, as amended ("**Section 409A**") provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive's Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement

with the Company are deemed to be “deferred compensation”, then to the extent delayed commencement of any portion of such payments is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to Executive prior to the earliest of (i) the expiration of the six (6)-month period measured from the date of Executive’s Separation from Service with the Company, (ii) the date of Executive’s death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to Executive, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. **To the extent any payment under this Agreement may be classified as a “short-term deferral” within the meaning of Section 409A, such payment shall be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Except as otherwise expressly provided herein, to the extent any expense reimbursement or the provision of any in-kind benefit under this Agreement (or otherwise referenced herein) is determined to be subject to (and not exempt from) Section 409A of the Code, the amount of any such expenses eligible for reimbursement, or the provision of any in-kind benefit, in one calendar year shall not affect the expenses eligible for reimbursement or in kind benefits to be provided in any other calendar year, in no event shall any expenses be reimbursed after the last day of the calendar year following the calendar year in which Executive incurred such expenses, and in no event shall any right to reimbursement or the provision of any in-kind benefit be subject to liquidation or exchange for another benefit.**

11. Parachute Payments. If any payment or benefit (including payments and benefits pursuant to this Agreement) that Executive would receive in connection with a Change in Control from the Company or otherwise (“**Transaction Payment**”) would (i) constitute a “parachute payment” within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the “**Code**”) and (ii) but for this Paragraph, would be subject to the excise tax imposed by Section 4999 of the Code (the “**Excise Tax**”), then the Company shall cause to be determined, before any amounts of the Transaction Payment are paid to Executive, which of the following two alternative forms of payment would result in Executive’s receipt, on an after-tax basis, of the greater amount of the Transaction Payment notwithstanding that all or some portion of the Transaction Payment may be subject to the Excise Tax: (1) payment in full of the entire amount of the Transaction Payment (a “**Full Payment**”), or (2) payment of only a part of the Transaction Payment so that Executive receives the largest payment possible without the imposition of the Excise Tax (a “**Reduced Payment**”). For purposes of determining whether to make a Full Payment or a Reduced Payment, the Company shall cause to be taken into account all applicable federal, state and local income and employment taxes and the Excise Tax (all computed at the highest applicable marginal rate, net of the maximum reduction in federal income taxes which could be obtained from a deduction of such state and local taxes). If a Reduced Payment is made, (x) Executive shall have no rights to any additional payments and/or benefits constituting

the Transaction Payment, and (y) reduction in payments and/or benefits shall occur in the manner that results in the greatest economic benefit to Executive as determined in this paragraph. If more than one method of reduction will result in the same economic benefit, the portions of the Transaction Payment shall be reduced pro rata.

Unless Executive and the Company otherwise agree in writing, any determination required under this Paragraph shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. Executive and the Company shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Paragraph. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Paragraph as well as any costs incurred by Executive with the Accountants for tax planning under Sections 280G and 4999 of the Code.

12. Proprietary Information Obligations.

12.1 Confidential Information Agreement. On or around May 30, 2019, Executive entered into that certain Employee Confidential Information and Inventions Assignment Agreement (the "**Confidentiality Agreement**"), which remains in full force and effect.

12.2 Third-Party Agreements and Information. Executive represents and warrants that Executive's employment by the Company does not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive's duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential information arising out of prior employment, consulting, or other third party relationships, that would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by Executive in the course of Executive's work for the Company.

13. Outside Activities During Employment.

13.1 Non-Company Business. Except with the prior written consent of the CEO, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Executive may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of

Executive's duties hereunder or present a conflict of interest with the Company.

13.2 No Adverse Interests. Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise.

14. Dispute Resolution. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or in equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, including but not limited to statutory claims, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16 and to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California, conducted by JAMS, Inc. ("**JAMS**") under the then applicable JAMS rules and procedures for employment disputes (available upon request and also currently available at <https://www.jamsadr.com/rules-employment-arbitration>). **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this Paragraph, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. This paragraph shall not apply to any action or claim that cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought in court pursuant to the California Private Attorneys General Act of 2004, as amended, the California Fair Employment and Housing Act, as amended, and the California Labor Code, as amended, to the extent such claims are not permitted by applicable law(s) to be submitted to mandatory arbitration and the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the "**Excluded Claims**"). In the event Executive intends to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of administration fees that would be required of Executive if the dispute were decided in a court of law.

Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

15. General Provisions.

15.1 Notices. Any notices provided must be in writing and will be deemed effective upon the earlier of personal delivery (including personal delivery by fax) or the next day after sending by overnight carrier, to the Company at its primary office location and to Executive at the address as listed on the Company payroll.

15.2 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties insofar as possible under applicable law.

15.3 Waiver. Any waiver of any breach of any provisions of this Agreement, or rights hereunder, must be in writing to be effective, and shall not thereby be deemed to be a waiver of any preceding or succeeding breach or rights of the same or any other provision of this Agreement.

15.4 Complete Agreement / Representations. Executive acknowledges and agrees that Executive has been paid all compensation owed for all time worked for the Company, and other than the current payroll, has not earned and is not entitled to receive any other compensation or benefits from the Company other than as set forth in this Agreement. Executive further represents that Executive is not aware of any events or actions that have occurred during Executive's employment with the Company that would give rise to Executive's ability to resign Executive's employment for Good Reason under the Employment Agreement, Offer Letter, or any other plan, policy or agreement. This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between Executive and the Company with regard to this subject matter and is the complete, final, and exclusive embodiment of the Parties' agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations (including without limitation the Employment Agreement, the Offer Letter, and any other employment terms, offer letter or employment agreement Executive may have entered into or discussed with the Company, and Executive further acknowledges and agrees that as of the Effective Date, Executive will no longer be eligible for, nor entitled to, any compensation or benefits under the Employment Agreement or Offer Letter or any other offer letter or agreement). This Agreement cannot be modified or amended except in a writing signed by a duly authorized officer of the Company.

15.5 Counterparts. This Agreement may be executed and delivered in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement, and delivery via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

15.6 Headings. The headings of the paragraphs hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

15.7 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of her duties hereunder and he may not assign any of her rights hereunder without the written consent of the Company, which shall not be withheld unreasonably.

15.8 Tax Withholding and Indemnification. All payments and awards contemplated or made pursuant to this Agreement will be subject to withholdings of applicable taxes in compliance with all relevant laws and regulations of all appropriate government authorities. Executive acknowledges and agrees that the Company has neither made any assurances nor any guarantees concerning the tax treatment of any payments or awards contemplated by or made pursuant to this Agreement. Executive has had the opportunity to retain a tax and financial advisor and fully understands the tax and economic consequences of all payments and awards made pursuant to the Agreement.

15.9 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the laws of the State of California without regard to conflicts of law principles.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Amended and Restated Executive Employment Agreement on the dates below.

ATRECA, INC.

By: /s/ John A. Orwin

John A. Orwin
President & Chief Executive Officer

Date: 11/11/2020

EXECUTIVE

/s/ Lisa Lynn Decker

Lisa Lynn Decker
Chief Business Officer

Date: 11/10/2020

ATRECA, INC.

**AMENDED AND RESTATED EXECUTIVE EMPLOYMENT AGREEMENT
for
NORMAN GREENBERG**

This Amended and Restated Executive Employment Agreement (the “**Agreement**”), made between Atreca, Inc. (the “**Company**”) and Norman Greenberg (the “**Executive**”) (collectively, the “**Parties**”), is effective as of November 11, 2020 (the “**Effective Date**”).

WHEREAS, Executive and the Company previously entered into that certain Executive Employment Agreement, dated March 25, 2016 (the “**Employment Agreement**”) which has governed the terms and conditions of Executive’s employment with the Company to date;

WHEREAS, the Company desires for Executive to continue to provide services to the Company, and wishes to provide Executive with certain compensation and benefits in return for such services, as set forth in this Agreement;

WHEREAS, the Company and Executive acknowledge that Executive has served as Senior Vice President & Chief Scientific Officer since on or around May 2, 2016, and Executive represents that he is not aware of any events or actions that have occurred since such date that would give rise to his resignation of employment for Good Reason (as defined and set forth below) as of the date he is executing this Agreement; and

WHEREAS, the Company and Executive desire to amend and restate the Employment Agreement such that this Agreement provides all of the terms and conditions of Executive’s continued employment with the Company as of the Effective Date; and

WHEREAS, Executive wishes to continue to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits, as set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereto agree that the Employment Agreement is amended, restated and superseded by this Agreement, and shall be of no further force or effect, and the Parties further agree as follows:

1. Employment by the Company.

1.1 Position. Executive shall continue to serve as the Company’s Senior Vice President & Chief Scientific Officer During the term of Executive’s employment with the Company, Executive will devote Executive’s best efforts and substantially all of Executive’s business time and attention to the business of the Company, except for approved

vacation periods and reasonable periods of illness or other incapacities permitted by the Company's general employment policies.

1.2 Duties and Location. Executive shall continue to perform such duties as are required by the Company's Chief Strategy Officer, to whom Executive will report. Executive's primary office location shall be the Company's South San Francisco, California office. The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time, and to require reasonable business travel. The Company may modify Executive's job title and duties as it deems necessary and appropriate in light of the Company's needs and interests from time to time.

1.3 Policies and Procedures. The employment relationship between the Parties shall continue to be governed by the general employment policies and practices of the Company, as adopted or modified from time to time in the Company's discretion, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. Compensation.

2.1 Salary. For services to be rendered hereunder, Executive shall receive a base salary at the rate of four-hundred-twenty-five-thousand three-hundred-ninety dollars (\$425,390.00) per year (the "**Base Salary**"), subject to standard payroll deductions and withholdings and payable in accordance with the Company's regular payroll schedule. As an exempt salaried employee, Executive will be required to work the Company's normal business hours, and such additional time as appropriate for Executive's work assignments and position, and Executive will not be entitled to overtime compensation.

2.2 Bonus. Executive will be eligible for an annual discretionary bonus of up to forty percent (40%) of Executive's Base Salary (the "**Annual Bonus**"), under the terms herein and in the Company's written bonus plan applicable to executives. Whether Executive receives an Annual Bonus for any given year, and the amount of any such Annual Bonus, will be determined by the Company's Board of Directors (the "**Board**"), the Compensation Committee of the Board, or the Chief Executive Officer (the "**CEO**"), as applicable, in its sole discretion, based upon the Company's and Executive's achievement of objectives to be determined on an annual basis by the Board, the Compensation Committee of the Board, or the CEO, as applicable. In order to earn and receive payment of an Annual Bonus (including a prorated Annual Bonus), Executive must be an active employee of the Company on the date that any such Annual Bonus is paid. Any such Annual Bonus will be paid no later than March 15 of the calendar year after the applicable bonus year.

2.3 Temporary Housing and Travel Stipend. The Company will continue to provide Executive with \$6,270.00 per month to cover travel expenses between Executive's primary residence and the Company's South San Francisco, California office,

and housing expenses while Executive works in South San Francisco (the “**Housing and Travel Stipend**”). Executive may use the Housing and Travel Stipend to pay for housing and travel expenses, or for any other purpose. The Housing and Travel Stipend will be paid on a monthly basis. Since the Housing and Travel Stipend is taxable to Executive, the Company will gross up the Executive with respect to the Housing and Travel Stipend at standard income rates in order to cover applicable taxes. If Executive’s employment is terminated before the end of this foregoing period for any reason, or if the need for Executive to travel to and work in the Company’s office is no longer necessary (as determined by the Board in its sole discretion), the Company will cease paying Executive the Housing and Travel Stipend.

3. Standard Company Benefits. Executive shall continue to be entitled to participate in all employee benefit programs for which Executive is eligible under the terms and conditions of the benefit plans and applicable policies that may be in effect from time to time and provided by the Company to its employees. The Company reserves the right to cancel or change the benefit plans or programs it offers to its employees at any time. Additional information regarding these benefits is available upon request.

4. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in furtherance of or in connection with the performance of Executive’s duties hereunder, in accordance with the Company’s expense reimbursement policy as in effect from time to time.

5. Equity. Any and all Equity Awards granted to Executive prior to the Effective Date will continue to be governed by the terms of the applicable stock option and equity incentive award plans or agreements and grant notices. For purposes of this Agreement, “**Equity Awards**” shall mean all stock options, restricted stock and restricted stock units and such other equity awards granted to Executive prior to, or after, the Effective Date pursuant to the Company’s stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof.

6. At-Will Employment. Executive’s employment relationship remains at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause (as defined below) or advance notice.

7. Termination of Employment.

7.1 Termination without Severance: Termination for Cause; Resignation Without Good Reason; Death or Disability. If Executive resigns his employment without Good Reason (as defined below), or the Company terminates Executive’s employment for Cause (as defined below), or if Executive’s employment terminates as a result of Executive’s death or disability (each such termination referred to as

a “**Non-Qualifying Termination**”), then (a) Executive will no longer vest in any Equity Awards, (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned), and (c) Executive will not be entitled to any Severance Benefits (as defined below). In addition, Executive shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination.

7.2 Termination with Severance: Termination Without Cause; Resignation for Good Reason. In the event Executive’s employment with the Company is terminated by the Company without Cause (other than as a result of Executive’s death or disability), or Executive resigns his employment for Good Reason (either such termination referred to as a “**Qualifying Termination**”), then, (i) provided such termination constitutes a “separation from service” (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a “**Separation from Service**”), and (ii) subject to Paragraph 8 (“**Conditions to Receipt of Severance Benefits**”) and Executive’s continued compliance with the terms of this Agreement (including the Confidentiality Agreement), the Company shall provide Executive with severance benefits in accordance with the terms below (separately or collectively, the “**Severance Benefits**”):

(i) Qualifying Termination not in Connection with a Change in Control. In the event of a Qualifying Termination that occurs at any time other than within the thirty (30)-day period prior to the closing of a Change in Control (as defined below) or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company: (a) the equivalent of nine (9) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**Cash Severance**”); and (b) the equivalent of nine (9) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**COBRA Severance**”). The Cash Severance and COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the COBRA Severance payment toward the cost of COBRA premiums.

(ii) Qualifying Termination in Connection with a Change in Control. In the event of a Qualifying Termination that occurs within the thirty (30)-day period prior to the closing of a Change in Control or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company:

(a) Severance. The equivalent of: (i) twelve (12) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**CIC Cash Severance**”); and

(ii) twelve (12) months (i.e., 1x) of Executive's target Annual Bonus for the applicable bonus year in which the termination of employment occurs, subject to standard payroll deductions and withholdings (the "**Annual Bonus Severance**"); and (iii) twelve (12) months of the cost of Executive's COBRA premiums needed to continue Executive's medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the "**CIC COBRA Severance**"). The CIC Cash Severance, Annual Bonus Severance, and CIC COBRA Severance will be paid in a lump sum within sixty (60) days following Executive's Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the CIC COBRA Severance payment toward the cost of COBRA premiums.

(b) Accelerated Vesting. As additional Severance Benefits: (i) vesting of Executive's time-based vesting Equity Awards shall be accelerated such that one hundred percent (100%) of the shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment; and (ii) vesting of Executive's performance-based vesting Equity Awards shall be accelerated as if all performance goals were achieved at the 100% level of performance applicable to such awards, and such number of shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment.

8. Conditions to Receipt of Severance Benefits.

8.1 General Conditions. The receipt of the Severance Benefits, will be subject to Executive signing and not revoking a separation agreement and release of claims in a form reasonably satisfactory to the Company within sixty (60) days following the date of Executive's Separation from Service (the "**Separation Agreement**"). No Severance Benefits will be paid or provided until the Separation Agreement becomes effective. Executive shall also resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination. Furthermore, as a precondition to Executive's receipt of the Severance Benefits, on or within five (5) days after Executive's Separation from Service (or earlier if requested by the Company), Executive agrees to return to the Company all Company documents (and all copies thereof) and other Company property within Executive's possession, custody or control.

8.2 Clawback and Recovery. All Severance Benefits provided under this Agreement will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of common stock of

the Company or other cash or property upon the occurrence of a termination of employment for Cause.

9. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

(i) Cause. For purposes of this Agreement, “Cause” for termination will mean: (a) commission of any felony or crime involving dishonesty; (b) participation in any fraud or embezzlement against the Company; (c) material breach of Executive’s duties to the Company; (d) persistent unsatisfactory performance of job duties after written notice from the CEO and a reasonable opportunity to cure (if deemed curable); (e) intentional damage to any property of the Company; (f) misconduct, or other violation of Company policy that has caused, or is reasonably expected to result in, harm to the Company; (g) breach of any written agreement with the Company, including but not limited to this Agreement or the Confidentiality Agreement (as defined below); and (h) conduct by Executive which in the good faith and reasonable determination of the CEO demonstrates gross unfitness to serve. The determination as to whether Executive is being terminated for Cause shall be made in good faith by the Company and shall be final and binding. The foregoing definition does not in any way limit the Company’s ability to terminate Executive’s employment at any time.

(ii) Change in Control. For purposes of this Agreement, “Change in Control” shall have the same meaning given it in the Company’s 2019 Equity Incentive Plan, as may be amended or restated.

(iii) Good Reason. For purposes of this Agreement, Executive shall have “Good Reason” for resignation from employment with the Company if any of the following actions are taken by the Company without Executive’s prior written consent: (a) a material reduction in Executive’s Base Salary, which the parties agree is a reduction of at least ten percent (10%) of Executive’s Base Salary (unless pursuant to a salary reduction program applicable generally to the Company’s similarly situated employees); (b) a material reduction in Executive’s duties (including responsibilities and/or authorities), *provided, however*, that a change in job position (including a change in title) shall not be deemed a “material reduction” in and of itself unless Executive’s new duties are materially reduced from the prior duties; or (c) relocation of Executive’s principal place of employment to a place that increases Executive’s one-way commute by more than fifty (50) miles as compared to Executive’s then-current principal place of employment immediately prior to such relocation. In order to resign his employment for Good Reason, Executive must provide written notice to the Company within thirty (30) days after the first occurrence of the event giving rise to Good Reason setting forth the basis for Executive’s resignation, allow the Company at least thirty (30) days from receipt of such written notice to cure such event, and if such event is not reasonably cured within such period, Executive must resign from all positions Executive then holds with the Company not later than fifteen (15) days after the expiration of the cure period.

10. Section 409A. It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the Internal Revenue Code of 1986, as amended (“**Section 409A**”) provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive’s right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive’s Separation from Service to be a “specified employee” for purposes of Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be “deferred compensation”, then to the extent delayed commencement of any portion of such payments is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to Executive prior to the earliest of (i) the expiration of the six (6)-month period measured from the date of Executive’s Separation from Service with the Company, (ii) the date of Executive’s death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to Executive, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. **To the extent any payment under this Agreement may be classified as a “short-term deferral” within the meaning of Section 409A, such payment shall be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A.** Except as otherwise expressly provided herein, to the extent any expense reimbursement or the provision of any in-kind benefit under this Agreement (or otherwise referenced herein) is determined to be subject to (and not exempt from) Section 409A of the Code, the amount of any such expenses eligible for reimbursement, or the provision of any in-kind benefit, in one calendar year shall not affect the expenses eligible for reimbursement or in kind benefits to be provided in any other calendar year, in no event shall any expenses be reimbursed after the last day of the calendar year following the calendar year in which Executive incurred such expenses, and in no event shall any right to reimbursement or the provision of any in-kind benefit be subject to liquidation or exchange for another benefit.

11. Parachute Payments. If any payment or benefit (including payments and benefits pursuant to this Agreement) that Executive would receive in connection with a Change in Control from the Company or otherwise (“**Transaction Payment**”) would

(i) constitute a “parachute payment” within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the “Code”) and (ii) but for this Paragraph, would be subject to the excise tax imposed by Section 4999 of the Code (the “Excise Tax”), then the Company shall cause to be determined, before any amounts of the Transaction Payment are paid to Executive, which of the following two alternative forms of payment would result in Executive’s receipt, on an after-tax basis, of the greater amount of the Transaction Payment notwithstanding that all or some portion of the Transaction Payment may be subject to the Excise Tax: (1) payment in full of the entire amount of the Transaction Payment (a “Full Payment”), or (2) payment of only a part of the Transaction Payment so that Executive receives the largest payment possible without the imposition of the Excise Tax (a “Reduced Payment”). For purposes of determining whether to make a Full Payment or a Reduced Payment, the Company shall cause to be taken into account all applicable federal, state and local income and employment taxes and the Excise Tax (all computed at the highest applicable marginal rate, net of the maximum reduction in federal income taxes which could be obtained from a deduction of such state and local taxes). If a Reduced Payment is made, (x) Executive shall have no rights to any additional payments and/or benefits constituting the Transaction Payment, and (y) reduction in payments and/or benefits shall occur in the manner that results in the greatest economic benefit to Executive as determined in this paragraph. If more than one method of reduction will result in the same economic benefit, the portions of the Transaction Payment shall be reduced pro rata. Unless Executive and the Company otherwise agree in writing, any determination required under this Paragraph shall be made in writing by the Company’s independent public accountants (the “Accountants”), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. Executive and the Company shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Paragraph. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Paragraph as well as any costs incurred by Executive with the Accountants for tax planning under Sections 280G and 4999 of the Code.

12. Proprietary Information Obligations.

12.1 Confidential Information Agreement. On or around April 6, 2016, Executive entered into that certain Employee Confidential Information and Inventions Assignment Agreement (the “Confidentiality Agreement”), which remains in full force and effect.

12.2 Third-Party Agreements and Information. Executive represents and warrants that Executive’s employment by the Company does not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive’s duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential

information arising out of prior employment, consulting, or other third party relationships, that would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by Executive in the course of Executive's work for the Company.

13. Outside Activities During Employment.

13.1 Non-Company Business. Except with the prior written consent of the CEO, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Executive may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of Executive's duties hereunder or present a conflict of interest with the Company.

13.2 No Adverse Interests. Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise.

14. Dispute Resolution. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or in equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, including but not limited to statutory claims, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16 and to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California, conducted by JAMS, Inc. ("**JAMS**") under the then applicable JAMS rules and procedures for employment disputes (available upon request and also currently available at <https://www.jamsadr.com/rules-employment-arbitration>). **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this Paragraph, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. This paragraph shall not apply

to any action or claim that cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought in court pursuant to the California Private Attorneys General Act of 2004, as amended, the California Fair Employment and Housing Act, as amended, and the California Labor Code, as amended, to the extent such claims are not permitted by applicable law(s) to be submitted to mandatory arbitration and the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the “**Excluded Claims**”). In the event Executive intends to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator’s essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS’ arbitration fees in excess of the amount of administration fees that would be required of Executive if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

15. General Provisions.

15.1 Notices. Any notices provided must be in writing and will be deemed effective upon the earlier of personal delivery (including personal delivery by fax) or the next day after sending by overnight carrier, to the Company at its primary office location and to Executive at the address as listed on the Company payroll.

15.2 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties insofar as possible under applicable law.

15.3 Waiver. Any waiver of any breach of any provisions of this Agreement, or rights hereunder, must be in writing to be effective, and shall not thereby be deemed to be a waiver of any preceding or succeeding breach or rights of the same or any other provision of this Agreement.

15.4 Complete Agreement / Representations. Executive acknowledges and agrees that Executive has been paid all compensation owed for all time worked for the Company, and other than the current payroll, has not earned and is not entitled to receive any other compensation or benefits from the Company other than as set forth in this

Agreement. Executive further represents that Executive is not aware of any events or actions that have occurred during Executive's employment with the Company that would give rise to Executive's ability to resign Executive's employment for Good Reason under the Employment Agreement, or any other plan, policy or agreement. This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between Executive and the Company with regard to this subject matter and is the complete, final, and exclusive embodiment of the Parties' agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations (including without limitation the Employment Agreement and any other employment terms, offer letter or employment agreement Executive may have entered into or discussed with the Company, and Executive further acknowledges and agrees that as of the Effective Date, Executive will no longer be eligible for, nor entitled to, any compensation or benefits under the Employment Agreement or any offer letter or agreement). This Agreement cannot be modified or amended except in a writing signed by a duly authorized officer of the Company.

15.5 Counterparts. This Agreement may be executed and delivered in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement, and delivery via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

15.6 Headings. The headings of the paragraphs hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

15.7 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of his duties hereunder and he may not assign any of his rights hereunder without the written consent of the Company, which shall not be withheld unreasonably.

15.8 Tax Withholding and Indemnification. All payments and awards contemplated or made pursuant to this Agreement will be subject to withholdings of applicable taxes in compliance with all relevant laws and regulations of all appropriate government authorities. Executive acknowledges and agrees that the Company has neither made any assurances nor any guarantees concerning the tax treatment of any payments or awards contemplated by or made pursuant to this Agreement. Executive has had the opportunity to retain a tax and financial advisor and fully understands the tax and economic consequences of all payments and awards made pursuant to the Agreement.

15.9 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the laws of the State of California without regard to conflicts of law principles.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Amended and Restated Executive Employment Agreement on the dates below.

ATRECA, INC.

By: /s/ John A. Orwin

John A. Orwin
President & Chief Executive Officer

Date: 11/11/2020

EXECUTIVE

/s/ Norman Greenberg

Norman Greenberg
Senior Vice President & Chief Scientific Officer

Date: 11/9/2020

ATRECA, INC.

AMENDED AND RESTATED EXECUTIVE EMPLOYMENT AGREEMENT
for
COURTNEY PHILLIPS

This Amended and Restated Executive Employment Agreement (the “**Agreement**”), made between Atreca, Inc. (the “**Company**”) and Courtney Phillips (the “**Executive**”) (collectively, the “**Parties**”), is effective as of November 11, 2020 (the “**Effective Date**”).

WHEREAS, Executive and the Company previously entered into that certain Executive Employment Agreement, dated June 10, 2019 (the “**Employment Agreement**”), which has governed the terms and conditions of Executive’s employment with the Company to date;

WHEREAS, the Company desires for Executive to continue to provide services to the Company, and wishes to provide Executive with certain compensation and benefits in return for such services, as set forth in this Agreement;

WHEREAS, the Company and Executive acknowledge that Executive has served as General Counsel since on or around June 10, 2019 and Executive represents that she is not aware of any events or actions that have occurred since such date that would give rise to her resignation of employment for Good Reason (as defined and set forth below) as of the date she is executing this Agreement; and

WHEREAS, the Company and Executive desire to amend and restate the Employment Agreement such that this Agreement provides all of the terms and conditions of Executive’s continued employment with the Company as of the Effective Date; and

WHEREAS, Executive wishes to continue to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits, as set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereto agree that the Employment Agreement is amended, restated and superseded by this Agreement, and shall be of no further force or effect, and the Parties further agree as follows:

1. Employment by the Company.

1.1 Position. Executive shall continue to serve as the Company’s General Counsel. During the term of Executive’s employment with the Company, Executive will devote Executive’s best efforts and substantially all of Executive’s business time and attention to the business of the Company, except for approved vacation periods and

reasonable periods of illness or other incapacities permitted by the Company's general employment policies.

1.2 Duties and Location. Executive shall continue to perform such duties as are required by the Company's Chief Executive Officer, to whom Executive will report. Executive's primary office location shall be the Company's South San Francisco, California office. The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time, and to require reasonable business travel. The Company may modify Executive's job title and duties as it deems necessary and appropriate in light of the Company's needs and interests from time to time.

1.3 Policies and Procedures. The employment relationship between the Parties shall continue to be governed by the general employment policies and practices of the Company, as adopted or modified from time to time in the Company's discretion, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. Compensation.

2.1 Salary. For services to be rendered hereunder, Executive shall receive a base salary at the rate of three-hundred-seventy-four thousand four-hundred dollars (\$374,400.00) per year (the "**Base Salary**"), subject to standard payroll deductions and withholdings and payable in accordance with the Company's regular payroll schedule. As an exempt salaried employee, Executive will be required to work the Company's normal business hours, and such additional time as appropriate for Executive's work assignments and position, and Executive will not be entitled to overtime compensation.

2.2 Bonus. Executive will be eligible for an annual discretionary bonus of up to forty percent (40%) of Executive's Base Salary (the "**Annual Bonus**"), under the terms herein and in the Company's written bonus plan applicable to executives. Whether Executive receives an Annual Bonus for any given year, and the amount of any such Annual Bonus, will be determined by the Company's Board of Directors (the "**Board**"), the Compensation Committee of the Board, or the Chief Executive Officer (the "**CEO**"), as applicable, in its sole discretion, based upon the Company's and Executive's achievement of objectives to be determined on an annual basis by the Board, the Compensation Committee of the Board, or the CEO, as applicable. In order to earn and receive payment of an Annual Bonus (including a prorated Annual Bonus), Executive must be an active employee of the Company on the date that any such Annual Bonus is paid. Any such Annual Bonus will be paid no later than March 15 of the calendar year after the applicable bonus year.

3. Standard Company Benefits. Executive shall continue to be entitled to participate in all employee benefit programs for which Executive is eligible under the terms and conditions of the benefit plans and applicable policies that may be in effect from time to

time and provided by the Company to its employees. The Company reserves the right to cancel or change the benefit plans or programs it offers to its employees at any time. Additional information regarding these benefits is available upon request.

4. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

5. Equity. Any and all Equity Awards granted to Executive prior to the Effective Date will continue to be governed by the terms of the applicable stock option and equity incentive award plans or agreements and grant notices. For purposes of this Agreement, "**Equity Awards**" shall mean all stock options, restricted stock and restricted stock units and such other equity awards granted to Executive prior to, or after, the Effective Date pursuant to the Company's stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof.

6. At-Will Employment. Executive's employment relationship remains at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause (as defined below) or advance notice.

7. Termination of Employment.

7.1 Termination without Severance: Termination for Cause; Resignation Without Good Reason; Death or Disability. If Executive resigns her employment without Good Reason (as defined below), or the Company terminates Executive's employment for Cause (as defined below), or if Executive's employment terminates as a result of Executive's death or disability (each such termination referred to as a "**Non-Qualifying Termination**"), then (a) Executive will no longer vest in any Equity Awards, (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned), and (c) Executive will not be entitled to any Severance Benefits (as defined below). In addition, Executive shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination.

7.2 Termination with Severance: Termination Without Cause; Resignation for Good Reason. In the event Executive's employment with the Company is terminated by the Company without Cause (other than as a result of Executive's death or disability), or Executive resigns her employment for Good Reason (either such termination referred to as a "**Qualifying Termination**"), then, (i) provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a "**Separation from Service**"), and (ii) subject to Paragraph 8 ("Conditions to Receipt of Severance Benefits") and Executive's continued compliance with the terms of this Agreement (including the Confidentiality

Agreement), the Company shall provide Executive with severance benefits in accordance with the terms below (separately or collectively, the “**Severance Benefits**”):

(i) **Qualifying Termination not in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs at any time other than within the thirty (30)-day period prior to the closing of a Change in Control (as defined below) or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company: (a) the equivalent of nine (9) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**Cash Severance**”); and (b) the equivalent of nine (9) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**COBRA Severance**”). The Cash Severance and COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the COBRA Severance payment toward the cost of COBRA premiums.

(ii) **Qualifying Termination in Connection with a Change in Control.** In the event of a Qualifying Termination that occurs within the thirty (30)-day period prior to the closing of a Change in Control or within the twelve (12)-month period following the closing of a Change in Control, Executive will be eligible to receive the following Severance Benefits from the Company:

(a) **Severance.** The equivalent of: (i) twelve (12) months of Executive’s Base Salary in effect as of the date of Executive’s employment termination, subject to standard payroll deductions and withholdings (the “**CIC Cash Severance**”); and (ii) twelve (12) months (i.e., 1x) of Executive’s target Annual Bonus for the applicable bonus year in which the termination of employment occurs, subject to standard payroll deductions and withholdings (the “**Annual Bonus Severance**”); and (iii) twelve (12) months of the cost of Executive’s COBRA premiums needed to continue Executive’s medical, dental and vision insurance coverage (including coverage for eligible dependents, if applicable), subject to standard payroll deductions and withholdings (the “**CIC COBRA Severance**”). The CIC Cash Severance, Annual Bonus Severance, and CIC COBRA Severance will be paid in a lump sum within sixty (60) days following Executive’s Separation from Service, provided the Separation Agreement (as described in Paragraph 8) has become effective. Executive may, but is not obligated to, use the CIC COBRA Severance payment toward the cost of COBRA premiums.

(b) **Accelerated Vesting.** As additional Severance Benefits: (i) vesting of Executive’s time-based vesting Equity Awards shall be accelerated such that one hundred percent (100%) of the shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive’s last day of employment; and (ii) vesting of Executive’s performance-based vesting Equity

Awards shall be accelerated as if all performance goals were achieved at the 100% level of performance applicable to such awards, and such number of shares subject to such Equity Awards shall be deemed immediately vested, and exercisable (to the extent applicable), as of Executive's last day of employment.

8. Conditions to Receipt of Severance Benefits.

8.1 General Conditions. The receipt of the Severance Benefits, will be subject to Executive signing and not revoking a separation agreement and release of claims in a form reasonably satisfactory to the Company within sixty (60) days following the date of Executive's Separation from Service (the "**Separation Agreement**"). No Severance Benefits will be paid or provided until the Separation Agreement becomes effective. Executive shall also resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of employment termination. Furthermore, as a precondition to Executive's receipt of the Severance Benefits, on or within five (5) days after Executive's Separation from Service (or earlier if requested by the Company), Executive agrees to return to the Company all Company documents (and all copies thereof) and other Company property within Executive's possession, custody or control.

8.2 Clawback and Recovery. All Severance Benefits provided under this Agreement will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of common stock of the Company or other cash or property upon the occurrence of a termination of employment for Cause.

9. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

(i) Cause. For purposes of this Agreement, "**Cause**" for termination will mean: (a) commission of any felony or crime involving dishonesty; (b) participation in any fraud or embezzlement against the Company; (c) material breach of Executive's duties to the Company; (d) persistent unsatisfactory performance of job duties after written notice from the CEO and a reasonable opportunity to cure (if deemed curable); (e) intentional damage to any property of the Company; (f) misconduct, or other violation of Company policy that has caused, or is reasonably expected to result in, harm to the Company; (g) breach of any written agreement with the Company, including but not limited to this Agreement or the Confidentiality Agreement (as defined below); and (h) conduct by Executive which in the good faith and reasonable determination of the CEO demonstrates gross unfitness to serve. The determination as to whether Executive is being terminated for

Cause shall be made in good faith by the Company and shall be final and binding. The foregoing definition does not in any way limit the Company's ability to terminate Executive's employment at any time.

(ii) **Change in Control.** For purposes of this Agreement, "**Change in Control**" shall have the same meaning given it in the Company's 2019 Equity Incentive Plan, as may be amended or restated.

(iii) **Good Reason.** For purposes of this Agreement, Executive shall have "**Good Reason**" for resignation from employment with the Company if any of the following actions are taken by the Company without Executive's prior written consent: (a) a material reduction in Executive's Base Salary, which the parties agree is a reduction of at least ten percent (10%) of Executive's Base Salary (unless pursuant to a salary reduction program applicable generally to the Company's similarly situated employees); (b) a material reduction in Executive's duties (including responsibilities and/or authorities), *provided, however*, that a change in job position (including a change in title) shall not be deemed a "material reduction" in and of itself unless Executive's new duties are materially reduced from the prior duties; or (c) relocation of Executive's principal place of employment to a place that increases Executive's one-way commute by more than fifty (50) miles as compared to Executive's then-current principal place of employment immediately prior to such relocation. In order to resign her employment for Good Reason, Executive must provide written notice to the Company within thirty (30) days after the first occurrence of the event giving rise to Good Reason setting forth the basis for Executive's resignation, allow the Company at least thirty (30) days from receipt of such written notice to cure such event, and if such event is not reasonably cured within such period, Executive must resign from all positions Executive then holds with the Company not later than fifteen (15) days after the expiration of the cure period.

10. Section 409A. It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the Internal Revenue Code of 1986, as amended ("**Section 409A**") provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive's Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be "deferred compensation", then to the extent delayed

commencement of any portion of such payments is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to Executive prior to the earliest of (i) the expiration of the six (6)-month period measured from the date of Executive's Separation from Service with the Company, (ii) the date of Executive's death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to Executive, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. **To the extent any payment under this Agreement may be classified as a "short-term deferral" within the meaning of Section 409A, such payment shall be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Except as otherwise expressly provided herein, to the extent any expense reimbursement or the provision of any in-kind benefit under this Agreement (or otherwise referenced herein) is determined to be subject to (and not exempt from) Section 409A of the Code, the amount of any such expenses eligible for reimbursement, or the provision of any in-kind benefit, in one calendar year shall not affect the expenses eligible for reimbursement or in kind benefits to be provided in any other calendar year, in no event shall any expenses be reimbursed after the last day of the calendar year following the calendar year in which Executive incurred such expenses, and in no event shall any right to reimbursement or the provision of any in-kind benefit be subject to liquidation or exchange for another benefit.**

11. Parachute Payments. If any payment or benefit (including payments and benefits pursuant to this Agreement) that Executive would receive in connection with a Change in Control from the Company or otherwise ("**Transaction Payment**") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the "**Code**") and (ii) but for this Paragraph, would be subject to the excise tax imposed by Section 4999 of the Code (the "**Excise Tax**"), then the Company shall cause to be determined, before any amounts of the Transaction Payment are paid to Executive, which of the following two alternative forms of payment would result in Executive's receipt, on an after-tax basis, of the greater amount of the Transaction Payment notwithstanding that all or some portion of the Transaction Payment may be subject to the Excise Tax: (1) payment in full of the entire amount of the Transaction Payment (a "**Full Payment**"), or (2) payment of only a part of the Transaction Payment so that Executive receives the largest payment possible without the imposition of the Excise Tax (a "**Reduced Payment**"). For purposes of determining whether to make a Full Payment or a Reduced Payment, the Company shall cause to be taken into account all applicable federal, state and local income and employment taxes and the Excise Tax (all computed at the highest applicable marginal rate, net of the maximum reduction in federal income taxes which could be obtained from a deduction of such state and local taxes). If a Reduced Payment is made, (x) Executive shall have no rights to any additional payments and/or benefits constituting the Transaction Payment, and (y) reduction in payments and/or benefits shall occur in the

manner that results in the greatest economic benefit to Executive as determined in this paragraph. If more than one method of reduction will result in the same economic benefit, the portions of the Transaction Payment shall be reduced pro rata. Unless Executive and the Company otherwise agree in writing, any determination required under this Paragraph shall be made in writing by the Company's independent public accountants (the "Accountants"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. Executive and the Company shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Paragraph. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Paragraph as well as any costs incurred by Executive with the Accountants for tax planning under Sections 280G and 4999 of the Code.

12. Proprietary Information Obligations.

12.1 Confidential Information Agreement. On or around May 15, 2019, Executive entered into that certain Employee Confidential Information and Inventions Assignment Agreement (the "Confidentiality Agreement"), which remains in full force and effect.

12.2 Third-Party Agreements and Information. Executive represents and warrants that Executive's employment by the Company does not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive's duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential information arising out of prior employment, consulting, or other third party relationships, that would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by Executive in the course of Executive's work for the Company.

13. Outside Activities During Employment.

13.1 Non-Company Business. Except with the prior written consent of the CEO, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Executive may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of Executive's duties hereunder or present a conflict of interest with the Company.

13.2 No Adverse Interests. Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise.

14. Dispute Resolution. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or in equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, including but not limited to statutory claims, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16 and to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California, conducted by JAMS, Inc. ("**JAMS**") under the then applicable JAMS rules and procedures for employment disputes (available upon request and also currently available at <https://www.jamsadr.com/rules-employment-arbitration>). **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this Paragraph, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. This paragraph shall not apply to any action or claim that cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought in court pursuant to the California Private Attorneys General Act of 2004, as amended, the California Fair Employment and Housing Act, as amended, and the California Labor Code, as amended, to the extent such claims are not permitted by applicable law(s) to be submitted to mandatory arbitration and the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the "**Excluded Claims**"). In the event Executive intends to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of administration fees that would be required of Executive if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from

obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

15. General Provisions.

15.1 Notices. Any notices provided must be in writing and will be deemed effective upon the earlier of personal delivery (including personal delivery by fax) or the next day after sending by overnight carrier, to the Company at its primary office location and to Executive at the address as listed on the Company payroll.

15.2 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties insofar as possible under applicable law.

15.3 Waiver. Any waiver of any breach of any provisions of this Agreement, or rights hereunder, must be in writing to be effective, and shall not thereby be deemed to be a waiver of any preceding or succeeding breach or rights of the same or any other provision of this Agreement.

15.4 Complete Agreement / Representations. Executive acknowledges and agrees that Executive has been paid all compensation owed for all time worked for the Company, and other than the current payroll, has not earned and is not entitled to receive any other compensation or benefits from the Company other than as set forth in this Agreement. Executive further represents that Executive is not aware of any events or actions that have occurred during Executive's employment with the Company that would give rise to Executive's ability to resign Executive's employment for Good Reason under the Employment Agreement, or any other plan, policy or agreement. This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between Executive and the Company with regard to this subject matter and is the complete, final, and exclusive embodiment of the Parties' agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations (including without limitation the Employment Agreement, and any other employment terms, offer letter or employment agreement Executive may have entered into or discussed with the Company, and Executive further acknowledges and agrees that as of the Effective Date, Executive will no longer be eligible for, nor entitled to, any compensation or benefits under the Employment Agreement or any offer letter or agreement). This Agreement cannot be modified or amended except in a writing signed by a duly authorized officer of the Company.

15.5 Counterparts. This Agreement may be executed and delivered in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement, and delivery via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

15.6 Headings. The headings of the paragraphs hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

15.7 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of her duties hereunder and he may not assign any of her rights hereunder without the written consent of the Company, which shall not be withheld unreasonably.

15.8 Tax Withholding and Indemnification. All payments and awards contemplated or made pursuant to this Agreement will be subject to withholdings of applicable taxes in compliance with all relevant laws and regulations of all appropriate government authorities. Executive acknowledges and agrees that the Company has neither made any assurances nor any guarantees concerning the tax treatment of any payments or awards contemplated by or made pursuant to this Agreement. Executive has had the opportunity to retain a tax and financial advisor and fully understands the tax and economic consequences of all payments and awards made pursuant to the Agreement.

15.9 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the laws of the State of California without regard to conflicts of law principles.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Amended and Restated Executive Employment Agreement on the dates below.

ATRECA, INC.

By: /s/ John A. Orwin

John A. Orwin
President & Chief Executive Officer

Date: 11/11/2020

EXECUTIVE

/s/ Courtney Phillips

Courtney Phillips
General Counsel

Date: 11/9/2020

CERTIFICATIONS

I, John A. Orwin, certify that:

1. I have reviewed this Form 10-Q of Atreca, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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) 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
 - (c) 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 12, 2020

By: /s/ JOHN A. ORWIN
John A. Orwin
Chief Executive Officer
(Principal Executive Officer)

CERTIFICATIONS

I, Herbert Cross, certify that:

1. I have reviewed this Form 10-Q of Atreca, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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) 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
 - (c) 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 12, 2020

By: /s/ HERBERT CROSS
Herbert Cross
Chief Financial Officer
(Principal Financial and Accounting Officer)

CERTIFICATION

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), John A. Orwin, Chief Executive Officer of Atreca, Inc. (the "Company"), and Herbert Cross, Chief Financial Officer of the Company, each hereby certifies that, to the best of his knowledge:

1. The Company's Quarterly Report on Form 10-Q for the period ended September 30, 2020, to which this Certification is attached as Exhibit 32.1 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and
2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 12, 2020

IN WITNESS WHEREOF, the undersigned has set his hands hereto as of the 12th day of November, 2020.

/s/ JOHN A. ORWIN

John A. Orwin
Chief Executive Officer

/s/ HERBERT CROSS

Herbert Cross
Chief Financial Officer

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Atreca, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.
