UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2019

OR

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

For the transition period from _____to _____

Commission File Number: 001-38957

ADAPTIVE BIOTECHNOLOGIES CORPORATION
(Exact Name of Registrant as Specified in its Charter)

Washington	**27-0907024**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
1551 Eastlake Avenue East, Suite 200	
Seattle, Washington	**98102**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (206) 659-0067

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value $0.0001 per share	ADPT	The NASDAQ Stock Market LLC

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

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

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

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

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

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

As of October 31, 2019, the registrant had 124,339,058 shares of common stock, $0.0001 par value per share, outstanding.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements that are based on management's beliefs and assumptions and on information currently available to management. All statements contained in this report other than statements of historical fact are forward-looking statements, including statements regarding our ability to develop, commercialize and achieve market acceptance of our current and planned products and services, our research and development efforts, and other matters regarding our business strategies, use of capital, results of operations and financial position, and plans and objectives for future operations. In some cases, you can identify forward-looking statements by the words "may," "will," "could," "would," "should," "expect," "intend," "plan," "anticipate," "believe," "estimate," "predict," "project," "potential," "continue," "ongoing" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties and other factors that may cause actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. These risks, uncertainties and other factors are described under "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and elsewhere in this report and in other documents we file with the Securities and Exchange Commission from time to time. We caution you that forward-looking statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. As a result, the forward-looking statements may not prove to be accurate. The forward-looking statements in this report represent our views as of the date of this report. We undertake no obligation to update any forward-looking statements for any reason, except as required by law.

Unless otherwise stated or the context otherwise indicates, references to "we," "us," "our" and similar references refer to Adaptive Biotechnologies Corporation.

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited)

Condensed Balance Sheets
(in thousands, except share and per share amounts)

	September 30, 2019	December 31, 2018
	(unaudited)	
Assets		
Current assets		
Cash and cash equivalents	$ 74,941	$ 55,030
Short-term marketable securities	498,487	109,988
Accounts receivable, net	9,257	4,807
Inventory	8,667	7,838
Prepaid expenses and other current assets	10,004	3,055
Total current assets	601,356	180,718
Long-term assets		
Property and equipment, net	46,542	19,125
Long-term marketable securities	135,306	—
Restricted cash	2,138	61
Intangible assets, net	12,356	13,626
Goodwill	118,972	118,972
Other assets	722	186
Total assets	$ 917,392	$ 332,688
Liabilities, convertible preferred stock and shareholders' equity (deficit)		
Current liabilities		
Accounts payable	$ 2,421	$ 1,793
Accrued liabilities	3,381	2,562
Accrued compensation and benefits	5,982	4,641
Current portion of deferred rent	324	1,109
Current deferred revenue	61,269	12,695
Total current liabilities	73,377	22,800
Long-term liabilities		
Convertible preferred stock warrant liability	—	336
Deferred rent liability, less current portion	6,258	6,102
Financing obligation	23,449	—
Deferred revenue, less current portion	228,339	704
Other long-term liabilities	44	—
Total liabilities	331,467	29,942
Commitments and contingencies (Note 8)		
Convertible preferred stock: $0.0001 par value, no and 93,762,517 shares authorized at September 30, 2019 and December 31, 2018, respectively; no and 92,790,094 shares issued and outstanding at September 30, 2019 and December 31, 2018, respectively; aggregate liquidation preference of $0 and $572,866 at September 30, 2019 and December 31, 2018, respectively	—	560,858
Shareholders' equity (deficit)		
Preferred stock: $0.0001 par value, 10,000,000 and no shares authorized at September 30, 2019 and December 31, 2018, respectively; no shares issued and outstanding at September 30, 2019 and December 31, 2018	—	—
Common stock: $0.0001 par value, 340,000,000 and 131,000,000 shares authorized at September 30, 2019 and December 31, 2018, respectively; 124,316,080 and 12,841,536 shares issued and outstanding at September 30, 2019 and December 31, 2018, respectively	12	1
Additional paid-in capital	930,208	37,902
Accumulated other comprehensive gain (loss)	572	(107)
Accumulated deficit	(344,867)	(295,908)
Total shareholders' equity (deficit)	585,925	(258,112)
Total liabilities, convertible preferred stock and shareholders' equity (deficit)	$ 917,392	$ 332,688

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

Adaptive Biotechnologies Corporation

Condensed Statements of Operations
(in thousands, except share and per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(unaudited)			
Revenue				
Sequencing revenue	$ 11,683	$ 8,463	$ 29,631	$ 22,524
Development revenue	14,375	8,725	31,231	15,947
Total revenue	26,058	17,188	60,862	38,471
Operating expenses				
Cost of revenue	5,601	5,360	16,323	14,393
Research and development	20,506	9,783	49,516	28,090
Sales and marketing	9,099	6,039	25,813	16,415
General and administrative	8,477	4,739	22,143	13,914
Amortization of intangible assets	428	428	1,270	1,271
Total operating expenses	44,111	26,349	115,065	74,083
Loss from operations	(18,053)	(9,161)	(54,203)	(35,612)
Interest and other income, net	4,103	869	6,208	2,436
Net loss	(13,950)	(8,292)	(47,995)	(33,176)
Fair value adjustment to Series E-1 convertible preferred stock options	—	(4)	(964)	(2)
Net loss attributable to common shareholders	$ (13,950)	$ (8,296)	$ (48,959)	$ (33,178)
Net loss per share attributable to common shareholders, basic and diluted	$ (0.11)	$ (0.66)	$ (0.97)	$ (2.67)
Weighted-average shares used in computing net loss per share attributable to common shareholders, basic and diluted	124,285,686	12,620,010	50,552,389	12,430,535

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

Adaptive Biotechnologies Corporation

Condensed Statements of Comprehensive Loss
(in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(unaudited)			
Net loss	$ (13,950)	$ (8,292)	$ (47,995)	$ (33,176)
Change in unrealized gain (loss) on investments	190	39	679	(35)
Comprehensive loss	$ (13,760)	$ (8,253)	$ (47,316)	$ (33,211)

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

Adaptive Biotechnologies Corporation

Condensed Statements of Convertible Preferred Stock and Shareholders' (Deficit) Equity
(in thousands, except share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Shareholders' (Deficit)
	Shares	Amount	Shares	Amount	Capital	(Loss) Gain	Deficit	Equity
Balance as of June 30, 2018 (unaudited)	92,790,094	$ 560,667	12,546,844	$ 1	$ 31,958	$ (240)	$ (274,154)	$ (242,435)
Issuance of common stock for cash upon exercise of stock options (unaudited)	—	—	174,583	—	62	—	—	62
Change in redemption value for vested Series E-1 convertible preferred stock options (unaudited)	—	4	—	—	—	—	(4)	(4)
Common stock option share-based compensation (unaudited)	—	—	—	—	2,553	—	—	2,553
Other comprehensive income (unaudited)	—	—	—	—	—	39	—	39
Net loss (unaudited)	—	—	—	—	—	—	(8,292)	(8,292)
Balance as of September 30, 2018 (unaudited)	92,790,094	$ 560,671	12,721,427	$ 1	$ 34,573	$ (201)	$ (282,450)	$ (248,077)
Balance as of June 30, 2019 (unaudited)	93,039,737	$ 561,931	13,725,381	$ 1	$ 46,160	$ 382	$ (330,917)	$ (284,374)
Proceeds from initial public offering, net of underwriters' discounts and commissions (unaudited)	—	—	17,250,000	2	320,848	—	—	320,850
Initial public offering costs (unaudited)	—	—	—	—	(4,986)	—	—	(4,986)
Conversion of convertible preferred stock to common stock (unaudited)	(93,039,737)	(561,931)	93,039,737	9	561,922	—	—	561,931
Conversion of convertible preferred stock warrant to common stock warrant (unaudited)	—	—	—	—	2,602	—	—	2,602
Issuance of common stock upon exercise of common stock warrants (unaudited)	—	—	54,792	—	9	—	—	9
Issuance of common stock for cash upon exercise of stock options (unaudited)	—	—	246,170	—	318	—	—	318
Common stock option and restricted stock unit share-based compensation (unaudited)	—	—	—	—	3,335	—	—	3,335
Other comprehensive income (unaudited)	—	—	—	—	—	190	—	190
Net loss (unaudited)	—	—	—	—	—	—	(13,950)	(13,950)
Balance as of September 30, 2019 (unaudited)	—	$ —	124,316,080	$ 12	$ 930,208	$ 572	$ (344,867)	$ 585,925

Adaptive Biotechnologies Corporation

Condensed Statements of Convertible Preferred Stock and Shareholders' (Deficit) Equity (Continued)
(in thousands, except share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Shareholders' (Deficit)
	Shares	Amount	Shares	Amount	Capital	(Loss) Gain	Deficit	Equity
Balance as of December 31, 2017	92,656,029	$ 561,333	12,208,731	$ 1	$ 24,972	$ (166)	$ (249,423)	$ (224,616)
Adjustments to accumulated deficit for adoption of guidance on accounting for share-based payment transactions (unaudited)	—	—	—	—	140	—	(140)	—
Issuance of common stock for cash upon exercise of stock options (unaudited)	—	—	512,696	—	885	—	—	885
Issuance of Series E-1 convertible preferred stock for cash upon exercise of Series E-1 convertible preferred stock options at fair value (unaudited)	134,065	100	—	—	—	—	—	—
Vested Series E-1 convertible preferred stock option forfeitures (unaudited)	—	(767)	—	—	476	—	291	767
Series E-1 convertible preferred stock option share-based compensation (unaudited)	—	—	—	—	3	—	—	3
Adjustment to redemption value for vested Series E-1 convertible preferred stock options (unaudited)	—	3	—	—	(3)	—	—	(3)
Change in redemption value for vested Series E-1 convertible preferred stock options (unaudited)	—	2	—	—	—	—	(2)	(2)
Common stock option share-based compensation (unaudited)	—	—	—	—	8,100	—	—	8,100
Other comprehensive loss (unaudited)	—	—	—	—	—	(35)	—	(35)
Net loss (unaudited)	—	—	—	—	—	—	(33,176)	(33,176)
Balance as of September 30, 2018 (unaudited)	92,790,094	$ 560,671	12,721,427	$ 1	$ 34,573	$ (201)	$ (282,450)	$ (248,077)
Balance as of December 31, 2018	92,790,094	$ 560,858	12,841,536	$ 1	$ 37,902	$ (107)	$ (295,908)	$ (258,112)
Proceeds from initial public offering, net of underwriters' discounts and commissions (unaudited)	—	—	17,250,000	2	320,848	—	—	320,850
Initial public offering costs (unaudited)	—	—	—	—	(4,986)	—	—	(4,986)
Conversion of convertible preferred stock to common stock (unaudited)	(93,039,737)	(561,931)	93,039,737	9	561,922	—	—	561,931
Conversion of convertible preferred stock warrant to common stock warrant (unaudited)	—	—	—	—	2,602	—	—	2,602
Issuance of common stock upon exercise of common stock warrants (unaudited)	—	—	54,792	—	9	—	—	9
Issuance of common stock for cash upon exercise of stock options (unaudited)	—	—	1,130,015	—	2,198	—	—	2,198
Issuance of Series E-1 convertible preferred stock for cash upon exercise of Series E-1 convertible preferred stock options at fair value (unaudited)	249,643	109	—	—	—	—	—	—
Change in redemption value for vested Series E-1 convertible preferred stock options (unaudited)	—	964	—	—	—	—	(964)	(964)
Common stock option and restricted stock unit share-based compensation (unaudited)	—	—	—	—	9,713	—	—	9,713
Other comprehensive income (unaudited)	—	—	—	—	—	679	—	679
Net loss (unaudited)	—	—	—	—	—	—	(47,995)	(47,995)
Balance as of September 30, 2019 (unaudited)	—	$ —	124,316,080	$ 12	$ 930,208	$ 572	$ (344,867)	$ 585,925

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

Adaptive Biotechnologies Corporation

Condensed Statements of Cash Flows
(in thousands)

	Nine Months Ended September 30,	
	2019	2018
	(unaudited)	
Operating activities		
Net loss	$ (47,995)	$ (33,176)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:		
Depreciation expense	4,446	3,136
Share-based compensation expense	9,713	8,103
Intangible assets amortization	1,270	1,271
Investment amortization	(3,533)	(824)
Gain on equipment disposals	(72)	(45)
Fair value adjustment of convertible preferred stock warrant	2,266	—
Other	(8)	4
Changes in operating assets and liabilities:		
Accounts receivable, net	(4,398)	(6,787)
Inventory	(829)	(2,313)
Prepaid expenses and other current assets	(6,840)	(916)
Accounts payable and accrued liabilities	3,131	1,729
Deferred rent	(628)	(427)
Deferred revenue	276,209	3,602
Other	(537)	(206)
Net cash provided by (used in) operating activities	232,195	(26,849)
Investing activities		
Purchases of property and equipment	(8,784)	(3,804)
Proceeds from sales of equipment	—	19
Purchases of marketable securities	(772,093)	(137,124)
Proceeds from maturities of marketable securities	252,500	114,016
Net cash used in investing activities	(528,377)	(26,893)
Financing activities		
Proceeds from exercise of stock options	2,307	985
Proceeds from initial public offering, net of underwriting discounts and commissions	320,850	—
Payment of deferred initial public offering costs	(4,986)	—
Proceeds from issuance of common stock upon the exercise of a common stock warrant	9	—
Other	(10)	(15)
Net cash provided by financing activities	318,170	970
Net increase (decrease) in cash, cash equivalents and restricted cash	21,988	(52,772)
Cash, cash equivalents and restricted cash at beginning of year	55,091	85,366
Cash, cash equivalents and restricted cash at end of period	$ 77,079	$ 32,594
Noncash investing and financing activities		
Purchases of equipment included in accounts payable and accrued liabilities	$ 498	$ 197
Conversion of convertible preferred stock to common stock upon closing of initial public offering	$ 561,931	$ —
Conversion of convertible preferred stock warrant to common stock warrant upon closing of initial public offering	$ 2,602	$ —

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

1. Organization and Description of Business

Adaptive Biotechnologies Corporation ("we," "us" or "our") is a commercial-stage company advancing the field of immune-driven medicine by harnessing the inherent biology of the adaptive immune system to transform the diagnosis and treatment of disease. We believe the adaptive immune system is nature's most finely tuned diagnostic and therapeutic for most diseases, but the inability to decode it has prevented the medical community from fully leveraging its capabilities. Our immune medicine platform is the foundation for our expanding suite of products and services. The cornerstone of our immune medicine platform and core immunosequencing product, immunoSEQ, serves as our underlying research and development engine and generates revenue from academic and biopharmaceutical customers. Our first clinical diagnostic product, clonoSEQ, is the first test authorized by the Food and Drug Administration ("FDA") for the detection and monitoring of minimal residual disease ("MRD") in patients with select blood cancers.

We were incorporated in the State of Washington on September 8, 2009 under the name Adaptive TCR Corporation. On December 21, 2011, we changed our name to Adaptive Biotechnologies Corporation. We are headquartered in Seattle, Washington.

Initial Public Offering

Our registration statement on Form S-1 related to our initial public offering ("IPO") was declared effective on June 26, 2019, and our common stock began trading on the Nasdaq Global Select Market on June 27, 2019. On July 1, 2019, we completed our IPO in which we issued and sold 17,250,000 shares of common stock, including shares issued upon the exercise in full of the underwriters' over-allotment option, at a public offering price of $20.00 per share. We received $315.9 million in net proceeds, after deducting underwriting discounts and commissions of $24.1 million and offering expenses of $5.0 million.

Immediately prior to the completion of our IPO on July 1, 2019, 93,039,737 shares of convertible preferred stock then outstanding converted into an equivalent number of shares of common stock. On July 1, 2019, in connection with the closing of our IPO, our amended and restated articles of incorporation, as filed with the Secretary of State of the State of Washington, and our amended and restated bylaws became effective. Also on July 1, 2019, an initial reserve of 15,519,170 shares under our new 2019 Equity Incentive Plan ("2019 Plan") became effective.

2. Significant Accounting Policies

Basis of Presentation and Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP") requires management to make certain estimates, judgments and assumptions that affect the reported amounts of assets and liabilities and the related disclosures at the date of the financial statements, as well as the reported amounts of revenues and expenses during the periods presented. We base our estimates on historical experience and other relevant assumptions that we believe to be reasonable under the circumstances. Estimates are used in several areas including, but not limited to, estimates of progress to date for certain performance obligations and the transaction price for certain contracts with customers, share-based compensation, including the fair value of stock, the provision for income taxes, including related reserves, and goodwill, among others. These estimates generally involve complex issues and require judgments, involve the analysis of historical results and prediction of future trends, can require extended periods of time to resolve and are subject to change from period to period. Actual results may differ materially from management's estimates.

Unaudited Interim Condensed Financial Statements

In our opinion, the accompanying unaudited condensed financial statements have been prepared in accordance with GAAP for interim financial information. These unaudited condensed financial statements include all adjustments necessary to fairly state the financial position and the results of our operations and cash flows for interim periods in accordance with GAAP. Interim-period results are not necessarily indicative of results of operations or cash flows for a full year or any subsequent interim period.

The accompanying unaudited condensed financial statements should be read in conjunction with our audited financial statements and notes included in our prospectus dated June 26, 2019 filed with the Securities and Exchange Commission ("SEC") on June 27, 2019 in connection with our IPO ("Prospectus").

Reclassifications

In the accompanying audited condensed balance sheet, certain prior year amounts have been reclassified to conform to the current period presentation. Specifically, "restricted cash" and "other assets" were previously included together in the restricted cash and other assets line item and are now separately stated. There was no change to total assets as a result of the reclassification.

Restricted Cash

We are required to maintain certain balances under lease arrangements for our property and facilities leases. We had restricted cash of $2.1 million and $0.1 million as of September 30, 2019 and December 31, 2018, respectively.

Concentrations of Risk

We are subject to a concentration of risk from a limited number of suppliers, or in some cases, single suppliers for some of our laboratory instruments and materials. This risk is managed by targeting a quantity of surplus stock.

Cash, cash equivalents and marketable securities are financial instruments that potentially subject us to concentrations of credit risk. We invest in money market funds, U.S. government debt securities, U.S. government agency securities, commercial paper and corporate bonds with high-quality accredited financial institutions.

Significant customers are those which represent more than 10% of our total revenue or accounts receivable, net balances at each respective balance sheet date. Revenue from these customers reflects their purchase of our products and services and our collaboration efforts with Genentech.

For each significant customer, revenue as a percentage of total revenue for the periods presented and accounts receivable, net as a percentage of total accounts receivable, net as of the periods presented were as follows:

	Revenue				Accounts Receivable, Net	
	Three Months Ended September 30,		Nine Months Ended September 30,			
	2019	2018	2019	2018	September 30, 2019	December 31, 2018
	(unaudited)				(unaudited)	
Customer A	16.0%	15.7%	11.8%	21.6%	39.6%	*%
Customer B	10.7	*	*	*	*	15.1
Customer C	*	35.0	*	19.1	*	13.2
Genentech, Inc.	43.9	*	43.7	*	*	*

* less than 10%

Leases

Operating Lease Arrangements

We have operating lease agreements for the laboratory and office facilities that we occupy. Rent expense is recognized on a straight-line basis over the term of the lease. Incentives granted under our facility leases, including rent holidays, are capitalized and are recognized as adjustments to rental expense on a straight-line basis over the term of the lease.

Lease Financing Arrangements

Due to our significant involvement during the construction process of a leased building, we qualify as the deemed owner of the building under build-to-suit lease accounting guidance. The cost of the related building is recorded in property and equipment, net and the offsetting lease financing obligation is recorded as a long-term financing obligation on our unaudited condensed balance sheet. As of September 30, 2019, $23.4 million of building costs have been recorded in property and equipment, net.

Revenue Recognition

We recognize revenue in accordance with Accounting Standards Codification ("ASC") Topic 606 ("ASC 606"), *Revenue from Contracts with Customers*. Under ASC 606, for all revenue-generating contracts, we perform the following steps to determine the amount of revenue to be recognized: (i) identify the contract or contracts; (ii) determine whether the promised goods or services are performance obligations, including whether they are distinct in the context of the contract; (iii) measure the transaction price, including the constraint on variable consideration; (iv) allocate the transaction price to the performance obligations based on estimated selling prices; and (v) recognize revenue when (or as) we satisfy each performance obligation. The following is a summary of the application of the respective model to each of our revenue classifications.

Overview

Our revenue is generated from immunosequencing ("sequencing") products and services ("sequencing revenue") and from regulatory or development support services leveraging our immune medicine platform ("development revenue"). When revenue generating contracts have elements of both sequencing revenue and development revenue, we allocate revenue based on the nature of the performance obligation and the allocated transaction price.

Sequencing Revenue

Sequencing revenue reflects the amounts generated from providing sequencing services and testing through our immunoSEQ and clonoSEQ products and services to our research and clinical customers, respectively.

For research customers, contracts typically include an amount billed in advance of services ("upfront"), and subsequent billings as sample results are delivered to the customer. Upfront amounts received are recorded as deferred revenue, which we recognize as revenue upon satisfaction of performance obligations. We have identified two typical performance obligations under the terms of our research service contracts: sequencing services and related data analysis. We recognize revenue for both identified performance obligations as sample results are delivered to the customer.

For other research customers who choose to purchase a research use only kit, the kits are sold on a price per kit basis with amounts payable upon delivery of the kit. Payments received are recorded as deferred revenue. For these customers, we have identified one performance obligation: the delivery of sample results. We recognize revenue as the results are delivered to the customer based on a proportion of the estimated samples that can be reported on for each kit.

For clinical customers, we derive revenues from providing our clonoSEQ test report to ordering physicians, and we bill and receive payments from commercial third-party payors and medical institutions. In these transactions, we have identified one performance obligation: the delivery of a clonoSEQ report. As payment from the respective payors may vary based on the various reimbursement rates and patient responsibilities, we consider the transaction price to be variable and record an estimate of the transaction price, subject to the constraint for variable consideration, as revenue at the time of delivery. The estimate of transaction price is based on historical and expected reimbursement rates with the various payors, which are monitored in subsequent periods and adjusted as necessary based on actual collection experience.

In January 2019, clonoSEQ received Medicare coverage aligned with the FDA label and National Comprehensive Cancer Network ("NCCN") guidelines for longitudinal monitoring in multiple myeloma ("MM") and B cell acute lymphoblastic leukemia ("ALL"). We bill Medicare for an episode of treatment when we deliver the first eligible test results. This billing contemplates all necessary tests required during a patient's treatment cycle, which is currently estimated at approximately four tests per patient, including the initial sequence identification test. Revenue is recognized at the time the initial billable test result is delivered and is based upon cumulative tests delivered to date. We estimate the number of tests we expect to deliver over a patient's treatment cycle based on historical testing frequencies for patients by indication. These estimates are subject to change as we develop more information about utilization over time. For the three and nine months ended September 30, 2019, we recognized $0.3 million and $1.1 million relating to the coverage policy, respectively; $0.1 million and $0.4 million of this revenue was related to tests delivered in periods prior to the three and nine months ended September 30, 2019, respectively. Any unrecognized revenue from the initial billable test is recorded as deferred revenue and is recognized as we deliver the remaining tests in a patient's treatment cycle.

Development Revenue

We derive revenue by providing services through development agreements to biopharmaceutical customers who seek access to our immune medicine platform technologies. We generate revenues from the delivery of professional support activities pertaining to the use of our proprietary immunoSEQ and clonoSEQ services in the development of the respective customers' initiatives. The transaction price for these contracts may consist of a combination of non-refundable upfront fees, separately priced sequencing fees, progress based milestones and regulatory milestones. The development agreements may include single or multiple performance obligations depending on the contract. For certain contracts, we may perform services to support the biopharmaceutical customers' regulatory submission as part of their registrational trials. These services include regulatory support pertaining to our technology intended to be utilized as part of the submission, development of analytical plans for our sequencing data, participation on joint research committees and assistance in completing a regulatory submission. Generally, these services are not distinct within the context of the contract, and they are accounted for as a single performance obligation.

When sequencing services are separately priced customer options, we assess if a material right exists and, if not, the customer option to purchase additional sequencing services is not considered part of the contract. Except for any non-refundable upfront fees, the other forms of compensation represent variable consideration. Variable consideration related to progress based and regulatory milestones is estimated using the most likely amount method where variable consideration is constrained until it is probable that a significant reversal of cumulative revenue recognized will not occur. Progress milestones such as the first sample result delivered or final patient enrollment in a customer trial are customer dependent and are included in the transaction price when the respective milestone is probable of occurring. Milestone payments that are not within our customers' control, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. Determining whether regulatory milestone payments are probable is an area that requires significant judgment. In making this assessment, we evaluate the scientific, clinical, regulatory and other risks that must be managed, as well as the level of effort and investment required to achieve the respective milestone.

The primary method used to estimate standalone selling price for performance obligations is the adjusted market assessment approach. Using this approach, we evaluate the market in which we sell our services and estimate the price that a customer in that market would be willing to pay for our services. We recognize revenue using either an input or output measure of progress that faithfully depicts performance on a contract, depending on the contract. The measure used is dependent on the nature of the service to be provided in each contract. Selecting the measure of progress and estimating progress to date requires significant judgment.

Deferred Offering Costs

Deferred offering costs consist of fees and expenses incurred in connection with the sale of our common stock in the IPO, including legal, accounting, printing and other IPO-related costs. Prior to the completion of our IPO, deferred offering costs were presented in the restricted cash and other assets line item on our unaudited condensed balance sheets. In connection with and as of the closing of our IPO, these costs were reclassified to additional paid-in capital, representing a reduction to the IPO proceeds. As of September 30, 2019, $5.0 million of these IPO-related costs are included in the additional paid-in capital line item on our unaudited condensed balance sheet.

Recently Adopted Accounting Pronouncements

In March 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-09, *Compensation—Stock Compensation* (Topic 718), intended to simplify the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification on the statements of cash flows. This guidance also allowed for an entity-wide accounting policy election to either estimate the number of awards that are expected to vest or account for forfeitures as they occur. We adopted this guidance as of January 1, 2018 and elected to account for forfeitures as they occur. We utilized a modified retrospective transition method, recorded the cumulative impact of applying this guidance, and recognized a cumulative increase to additional paid-in capital and an increase to accumulated deficit of $0.1 million.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles—Goodwill and Other* (Topic 350): *Simplifying the Test for Goodwill Impairment*, intended to simplify the goodwill impairment test. Under the new guidance, goodwill impairment is measured by the amount by which the carrying value of a reporting unit exceeds its fair value, without exceeding the carrying amount of goodwill allocated to that reporting unit. This guidance is effective January 1, 2022 and is required to be adopted on a prospective basis, with early adoption permitted. We adopted this guidance as of January 1, 2018 and the adoption did not have any impact on our financial statements.

In June 2018, the FASB issued ASU 2018-07, C*ompensation—Stock Compensation* (Topic 718): *Improvements to Nonemployee Share-Based Payment Accounting*, which expands the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. The guidance is effective for us beginning in 2019, with early adoption permitted. We adopted the guidance effective January 1, 2019 and the adoption did not have any impact on our financial statements.

New Accounting Pronouncements Not Yet Adopted

In February 2016, the FASB issued ASU No. 2016-02, *Leases* (Topic 842), intended to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheets and disclosing key information about leasing arrangements. This guidance is effective for us in fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. We have the transition option of retrospectively adjusting prior periods presented or adopting with a cumulative adjustment to retained earnings on the date of adoption. Although we are currently evaluating the impact that adopting this guidance will have on our financial statements, we believe the most significant changes will be related to the recognition of the right-of-use assets and related lease liabilities related to our operating leases on the balance sheets. Additionally, assuming we do not control the leased building currently being constructed at the date of adoption, we will derecognize the existing asset and liability created in accordance with build-to-suit lease accounting guidance under ASC 840, *Leases,* and record any difference as an adjustment to equity. We will then classify the lease as of the lease commencement date in accordance with the adopted guidance.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments—Credit Losses* (Topic 326): *Measurement of Credit Losses on Financial Instruments*, which amends the impairment model by requiring entities to use a forward-looking approach based on expected losses to estimate credit losses on certain types of financial instruments, including trade receivables and available-for-sale debt securities. The guidance is effective for us beginning in 2020, with early adoption permitted. Although we are currently evaluating the impact that adopting this guidance prospectively will have on our financial statements, we do not expect the adoption to have a material impact on our financial statements.

In August 2018, the FASB issued ASU No. 2018-15, *Intangibles—Goodwill and Other: Internal-Use Software* (Subtopic 350-40), to provide additional guidance on the accounting for costs of implementation activities performed in a cloud computing arrangement. This guidance is effective for fiscal years beginning after December 15, 2019 and early adoption of the amendments in this update are permitted. Furthermore, it can be applied either retrospectively or prospectively. We do not expect the adoption of this guidance to have a material impact on our financial statements.

3. Revenue

Translational Development Agreements

On December 18, 2015, we entered into a translational development agreement with a biopharmaceutical customer for access to certain of our oncology immunosequencing research datasets, including full-time employee support, to accelerate the customer's preclinical, nonclinical and clinical trial testing. Under the initial terms of the agreement, we could be entitled to up to $40.0 million over a period of four years, which does not include any separately negotiated research sequencing contracts. If the biopharmaceutical customer terminates the agreement prior to the end of the initial four-year research term for any reason other than a material uncured breach by us, then the biopharmaceutical partner has agreed to pay us $0.8 million. In May 2019, the agreement was subsequently amended to reduce the services provided, which in turn reduced the fourth year of eligible payments to $2.3 million.

We identified one performance obligation under this agreement, as the services were determined to be highly interrelated. We determined that any separately negotiated sequencing contracts are not performance obligations under the contract, as the contract did not contain any material rights related to such sequencing contracts. For the identified performance obligation, we assessed the work to be performed over the duration of the contract and determined that it is a consistent level of support throughout the period, and therefore, revenue has been recognized straight-line over the contract term.

Revenue recognized from this translational development agreement, excluding separately negotiated research sequencing contracts, was $0.6 million and $2.5 million in the three months ended September 30, 2019 and 2018, respectively, and $1.7 million and $7.5 million in the nine months ended September 30, 2019 and 2018, respectively.

MRD Development Agreements

We have entered into agreements with biopharmaceutical customers to further develop and commercialize clonoSEQ and the biopharmaceutical customers' therapeutics. Under each of the agreements, we received or will receive non-refundable upfront payments and could receive substantial additional payments upon reaching certain progress milestones or achievement of certain regulatory milestones pertaining to the customers' therapeutic and our clonoSEQ test.

Under the contracts, we identify performance obligations, which may include: (i) obligations to provide services supporting the customer's regulatory submission activities as they relate to our clonoSEQ test; and (ii) sequencing services for customer-provided samples for their regulatory submissions. The transaction price allocated to the respective performance obligations is estimated using an adjusted market assessment approach for the regulatory support services and a standalone selling price for the estimated immunosequencing services. At contract inception, we fully constrained any consideration related to the regulatory milestones, as the achievement of such milestones is subject to third-party regulatory approval and the customers' own submission decision-making. We recognize revenue relating to the sequencing services over time using an output method based on the proportion of sample results delivered relative to the total amount of sample results expected to be delivered and when expected to be a faithful depiction of progress. We use the same method to recognize the regulatory support services. When an output method based on the proportion of sample results delivered is not expected to be a faithful depiction of progress, we utilize an input method based on estimates of effort completed using a cost-based model.

In the three and nine months ended September 30, 2019 and in the three and nine months ended September 30, 2018, we earned $2.0 million and $6.0 million, respectively, in regulatory milestones upon the achievement of regulatory milestones by us and our respective customers' therapeutics. All $2.0 million and $6.0 million was recognized as revenue within the respective periods, as we determined these amounts were consistent with our estimated standalone selling price and the respective performance obligations were complete. We recognized $2.3 million and $6.1 million in development revenue related to these contracts in the three months ended September 30, 2019 and 2018, respectively, and $3.1 million and $8.0 million in the nine months ended September 30, 2019 and 2018, respectively.

As of September 30, 2019, in future periods we could receive up to an additional $129.0 million in milestone payments if certain regulatory approvals are obtained by our customers' therapeutics in connection with MRD data generated from our clonoSEQ test.

Genentech Collaboration Agreement

In December 2018, we entered into a worldwide collaboration and license agreement ("Genentech Agreement") with Genentech, Inc. ("Genentech") to leverage our capability to develop cellular therapies in oncology. Subsequent to receipt of regulatory approval in January 2019, we received a non-refundable upfront payment of $300.0 million in February 2019 and may be eligible to receive more than $1.8 billion over time, including payments of up to $75.0 million upon the achievement of specified regulatory milestones, up to $300.0 million upon the achievement of specified development milestones and up to $1,430.0 million upon the achievement of specified commercial milestones. In addition, we are separately able to receive tiered royalties at a rate ranging from the mid-single digits to the mid-teens on aggregate worldwide net sales of products arising from the strategic collaboration, subject to certain reductions, with aggregate minimum floors. Under the agreement, we are pursuing two product development pathways for novel T cell immunotherapies in which Genentech intends to use T cell receptors ("TCRs") screened by our immune medicine platform to engineer and manufacture cellular medicines:

- Shared Products. The shared products will use "off-the-shelf" TCRs identified against cancer antigens shared among patients ("Shared Products").
- Personalized Product. The personalized product will use patient-specific TCRs identified by real-time screening of TCRs against cancer antigens in each patient ("Personalized Product").

Under the terms of the agreement, we granted Genentech exclusive worldwide licenses to develop and commercialize TCR-based cellular therapies in the field of oncology, including licenses to existing shared antigen data packages. Additionally, Genentech has the right to determine which product candidates to further develop for commercialization purposes. We determined that this arrangement meets the criteria set forth in ASC Topic 808, *Collaborative Arrangements* ("ASC 808"), because both parties are active participants in the activity and are exposed to significant risks and rewards depending on the activity's commercial failure or success. Because ASC 808 does not provide guidance on how to account for the activities under a collaborative arrangement, we applied the guidance in ASC 606 to account for the activities related to the Genentech collaboration.

In applying ASC 606, we identified the following performance obligations at the inception of the agreement:

1. License to utilize on an exclusive basis all TCR-specific platform intellectual property to develop and commercialize any licensed products in the field of oncology.
2. License to utilize all data and information within each shared antigen data package and any other know-how disclosed by us to Genentech in oncology.
3. License to utilize all private antigen TCR product data in connection with research and development activities in the field of use.
4. License to existing shared antigen data packages.

5. Research and development services for shared product development including expansion of shared antigen data packages.
6. Research and development services for private product development.
7. Obligations to participate on various joint research, development and project committees.

We determined that none of the licenses, research and development services or obligations to participate on various committees were distinct within the context of the contract given such rights and activities were highly interrelated and there was substantial additional research and development to further develop the licenses. We considered factors such as the stage of development of the respective existing antigen data packages, the subsequent development that would be required to both identify and submit a potential target for investigational new drug acceptance under both product pathways and the variability in research and development pathways given Genentech's control of product commercialization. Specifically, under the agreement, Genentech is not required to pursue development or commercialization activities pertaining to both product pathways and may choose to proceed with one or the other as opposed to both. Accordingly, we determined that all of the identified performance obligations were attributable to one general performance obligation, which is to further the development of our TCR-specific platform, including data packages, and continue to make our TCR identification process available to Genentech to pursue either product pathway.

Separately, we have a responsibility to Genentech to enter into a supply and manufacturing agreement for patient specific TCRs as it pertains to any Personalized Product therapeutic. We determined this was an option right of Genentech should they pursue commercialization of a Personalized Product therapy. Because of the uncertainty as a result of the early stage of development, the novel approach of our collaboration with Genentech and our rights to future commercial milestones and royalty payments, we determined that this option right was not a material right that should be accounted for at inception. As such, we will account for the supply and manufacturing agreement when entered into between the parties.

We determined the initial transaction price shall be made up of only the $300.0 million upfront, non-refundable payment, as all potential regulatory and development milestone payments were probable of significant revenue reversal since their achievement was highly dependent on factors outside our control. As a result, these payments were fully constrained and were not included in the transaction price as of September 30, 2019. We excluded the commercial milestones and potential royalties from the transaction price as those items relate predominantly to the license rights granted to Genentech and will be assessed when and if such events occur.

As there are potential substantive developments necessary, which Genentech may be able to direct, we determined that we would apply a proportional performance model to recognize revenue for our performance obligation. We measure proportional performance using an input method based on costs incurred relative to the total estimated costs of research and development efforts to pursue both the Shared Product and Personalized Product pathways. We currently expect to recognize the revenue over a period of approximately seven to eight years from the effective date. This estimate of the research and development period considers pursuit options of development activities supporting both the Shared Product and the Personalized Product, but may be reduced or increased based on the various activities as directed by the joint committees, decisions made by Genentech, regulatory feedback or other factors not currently known.

We recognized revenue of $11.4 million and $26.2 million for the three and nine months ended September 30, 2019, respectively, related to the Genentech collaboration. Costs related to the Genentech collaboration are included in research and development expenses.

4. Fair Value Measurements

The following tables set forth the fair value of financial assets and liabilities as of September 30, 2019 and December 31, 2018 that were measured at fair value on a recurring basis (in thousands):

	September 30, 2019			
	Level 1	Level 2	Level 3	Total
	(unaudited)			
Financial assets				
Money market funds	$ 86,374	$ —	$ —	$ 86,374
Commercial paper	—	136,842	—	136,842
U.S. government debt and agency securities	—	419,011	—	419,011
Corporate bonds	—	77,940	—	77,940
Total financial assets	$ 86,374	$ 633,793	$ —	$ 720,167

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Financial assets				
Money market funds	$ 45,998	$ —	$ —	$ 45,998
Commercial paper	—	16,887	—	16,887
U.S. government debt and agency securities	—	85,623	—	85,623
Corporate bonds	—	7,478	—	7,478
Total financial assets	$ 45,998	$ 109,988	$ —	$ 155,986
Financial liabilities				
Convertible preferred stock warrant liability	$ —	$ —	$ 336	$ 336
Total financial liabilities	$ —	$ —	$ 336	$ 336

Level 1 securities include highly liquid money market funds, which we measure the fair value based on quoted prices in active markets for identical assets or liabilities. Level 2 securities consist of U.S. government debt securities, U.S. government agency securities, commercial paper and corporate bonds, and are valued based on recent trades of securities in inactive markets or based on quoted market prices of similar instruments and other significant inputs derived from or corroborated by observable market data.

Level 3 liabilities that were measured at fair value on a recurring basis consisted of a convertible preferred stock warrant liability. During the nine months ended September 30, 2019 and prior to the completion of our IPO on July 1, 2019, we recognized $2.3 million of expense related to the revaluation of the convertible preferred stock warrant liability in the interest and other income, net line item on our unaudited condensed statements of operations. Immediately prior to the completion of our IPO, the convertible preferred stock warrant liability converted to a common stock warrant and the financial liability was reclassified to the additional paid-in capital line item on our unaudited condensed balance sheet, thereby concluding the need for revaluation.

5. Investments

Available-for-sale investments consisted of the following as of September 30, 2019 and December 31, 2018 (in thousands):

	September 30, 2019			
	Amortized Cost	Unrealized Gain	Unrealized Loss	Estimated Fair Value
	(unaudited)			
Short-term marketable securities				
Commercial paper	$ 136,843	$ —	$ —	$ 136,843
U.S. government debt and agency securities	331,770	354	(15)	332,109
Corporate bonds	29,486	49	—	29,535
Total short-term marketable securities	$ 498,099	$ 403	$ (15)	$ 498,487
Long-term marketable securities:				
U.S. government debt and agency securities	$ 86,813	$ 112	$ (23)	$ 86,902
Corporate bonds	48,309	95	—	48,404
Total long-term marketable securities	$ 135,122	$ 207	$ (23)	$ 135,306

	December 31, 2018			
	Amortized Cost	Unrealized Gain	Unrealized Loss	Estimated Fair Value
Short-term marketable securities				
Commercial paper	$ 16,887	$ —	$ —	$ 16,887
U.S. government debt and agency securities	85,722	—	(99)	85,623
Corporate bonds	7,486	—	(8)	7,478
Total short-term marketable securities	$ 110,095	$ —	$ (107)	$ 109,988

The following table presents the gross unrealized holding losses and fair value for investments in an unrealized loss position, and the length of time that individual securities have been in a continuous loss position, as of September 30, 2019 (in thousands):

	Less Than 12 Months		12 Months Or Greater	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(unaudited)			
U.S. government debt and agency securities	$ 53,975	$ (38)	$ —	$ —
Total available-for-sale securities	$ 53,975	$ (38)	$ —	$ —

We evaluated our securities for other-than-temporary impairment and considered the decline in market value for the securities to be primarily attributable to current economic and market conditions. It is not more likely than not that we will be required to sell the securities, and we do not intend to do so prior to the recovery of the amortized cost basis. Based on this analysis, these marketable securities were not considered to be other-than-temporarily impaired as of September 30, 2019.

All the commercial paper, U.S. government debt and agency securities and corporate bonds designated as short-term marketable securities have an effective maturity date that is less than one year from September 30, 2019. Those that are designated as long-term marketable securities have an effective maturity date that is more than one year from September 30, 2019.

6. Goodwill and Intangible Assets

There have been no changes in the carrying amount of goodwill since its recognition in 2015.

Intangible assets subject to amortization as of September 30, 2019 and December 31, 2018 consisted of the following (in thousands):

	September 30, 2019		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
		(unaudited)	
Acquired developed technology	$ 20,000	$ (7,882)	$ 12,118
Purchased intellectual property	325	(87)	238
Balance at September 30, 2019	$ 20,325	$ (7,969)	$ 12,356

	December 31, 2018		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Acquired developed technology	$ 20,000	$ (6,636)	$ 13,364
Purchased intellectual property	325	(63)	262
Balance at December 31, 2018	$ 20,325	$ (6,699)	$ 13,626

The developed technology was acquired in connection with our acquisition of Sequenta, Inc. (“Sequenta”) in 2015. The remaining balance of the acquired technology and the purchased intellectual property is expected to be amortized over the next approximately 7.3 years.

As of September 30, 2019, expected future amortization expense for intangible assets was as follows (in thousands) (unaudited):

2019	$ 428
2020	1,698
2021	1,698
2022	1,698
2023	1,698
Thereafter	5,136
Total future amortization expense	$ 12,356

7. Deferred Revenue

Deferred revenue by revenue classification as of September 30, 2019 and December 31, 2018 was as follows (in thousands):

	September 30, 2019	December 31, 2018
	(unaudited)	
Current deferred revenue		
Sequencing	$ 12,419	$ 11,238
Development	48,850	1,457
Total current deferred revenue	61,269	12,695
Non-current deferred revenue		
Sequencing	1,195	516
Development	227,144	188
Total non-current deferred revenue	228,339	704
Total current and non-current deferred revenue	$ 289,608	$ 13,399

Genentech deferred revenue represents $47.4 million and $226.4 million of the current and non-current development deferred revenue balances, respectively, at September 30, 2019. In general, the current amounts will be recognized as revenue within 12 months and the non-current amounts will be recognized as revenue over a period of approximately seven to eight years. This period of time represents an estimate of the research and development period to develop cellular therapies in oncology, which may be reduced or increased based on the various development activities.

Changes in deferred revenue during the nine months ended September 30, 2019 were as follows (in thousands):

Deferred revenue balance at December 31, 2018	$ 13,399
Additions to deferred revenue during the period (unaudited)	312,248
Revenue recognized during the period (unaudited)	(36,039)
Deferred revenue balance at September 30, 2019 (unaudited)	$ 289,608

As of September 30, 2019, $6.4 million was recognized that was included in the deferred revenue balance at December 31, 2018. As a result of cancelled customer sequencing contracts, we recognized $1.5 million of sequencing revenue during the nine months ended September 30, 2019.

8. Commitments and Contingencies

Operating Leases

We have entered into various non-cancelable lease agreements for our office and laboratory spaces.

In July 2011, we entered into a non-cancelable lease agreement with a minority shareholder for our current headquarters in Seattle, Washington. The lease terms were subsequently amended multiple times, most recently in August 2019, when we expanded the existing premises. Rent obligations of the expanded premises commence four months after the landlord delivers the expanded premises to us for construction of certain tenant improvements, and the lease term for both the existing premises and the expanded premises ends 142 months after the commencement date of the new lease mentioned below, subject to our option to twice extend the lease for five years. If the new lease mentioned below does not commence, the lease term for the existing premises and the expanded premises ends March 31, 2024. The amended lease also requires us to pay additional amounts for operating and maintenance expenses.

In August 2019, we entered into an operating lease to rent 100,000 square feet in a to-be-constructed building in Seattle, Washington. Shell construction is expected to be completed in 2020. The lease term commences on the date that the landlord delivers the premises to us for construction of certain tenant improvements. Rent obligations commence 10 months thereafter, and the lease term ends 142 months from the date rent commences, subject to our option to twice extend the lease for five years. The lease is cancellable under certain circumstances if the landlord fails to deliver the premises to us by May 1, 2021. We plan to occupy the new building in 2021, once interior construction is finished. In connection with the lease, the landlord agreed to fund $20.0 million in improvements. The lease also requires us to pay additional amounts for operating and maintenance expenses. Furthermore, in connection with the lease, we entered into a letter of credit of $2.1 million with one of our existing financial institutions.

In October 2016, we entered into an agreement to sublease certain laboratory and office space in South San Francisco, California. The lease commenced in October 2016 and terminated in March 2019. The lease required us to pay additional amounts for operating and maintenance expenses.

In April 2018, we entered into a lease agreement to lease additional space in South San Francisco, California. The lease term is through March 2026 and provides for one five-year option. We will be responsible for our share of allocable operating expenses, tax expenses and utilities cost during the duration of the lease term. In connection with the lease, the landlord funded agreed-upon improvements prior to the lease commencement date of December 12, 2018. The landlord was solely responsible for the $2.4 million cost of such improvements, which we recognized as a leasehold improvement asset that depreciates beginning from the commencement date to the initial lease term, and a corresponding leasehold incentive obligation, which is amortized over the life of the lease.

As of September 30, 2019, future minimum lease payments, exclusive of operating and maintenance costs and inclusive of payments to be made under the financing obligation, were as follows (in thousands) (unaudited):

2019	$	901
2020		3,963
2021		6,745
2022		10,681
2023		10,985
Thereafter		107,570
Total future minimum lease payments	$	140,845

Rent expenses, inclusive of operating and maintenance costs, were $1.3 million and $1.1 million for the three months ended September 30, 2019 and 2018, respectively, and $3.6 million and $2.9 million for the nine months ended September 30, 2019 and 2018, respectively.

Legal Proceedings

We are subject to claims and assessments from time to time in the ordinary course of business. We will accrue a liability for such matters when it is probable that a liability has been incurred and the amount can be reasonably estimated. When only a range of possible loss can be established, the most probable amount in the range is accrued. If no amount within this range is a better estimate than any other amount within the range, the minimum amount in the range is accrued. We are not currently party to any material legal proceedings.

Indemnification Agreements

In the ordinary course of business, we may provide indemnification of varying scope and terms to vendors, lessors, customers and other parties with respect to certain matters including, but not limited to, losses arising out of breach of our agreements with them or from intellectual property infringement claims made by third parties. In addition, we have entered into indemnification agreements with members of our Board of Directors and certain of our executive officers that will require us to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers. The maximum potential amount of future payments that we could be required to make under these indemnification agreements is, in many cases, unlimited. We have not incurred any material costs as a result of such indemnifications and are not currently aware of any indemnification claims.

9. Shareholders' Equity

Convertible Preferred Stock

Immediately prior to the completion of our IPO on July 1, 2019, 93,039,737 shares of convertible preferred stock then outstanding converted into an equivalent number of shares of common stock. As of September 30, 2019, no shares of convertible preferred stock were outstanding.

Preferred Stock

We are authorized to issue 10,000,000 shares of preferred stock, par value $0.0001 per share. As of September 30, 2019, no shares of preferred stock were outstanding.

Common Stock

We are authorized to issue 340,000,000 shares of common stock. Our common stock has a par value of $0.0001, no preferences or privileges and is not redeemable. Holders of our common stock are entitled to one vote for each share of common stock held. As of September 30, 2019, we had 124,316,080 shares of common stock outstanding.

We have reserved shares of common stock for the following as of September 30, 2019 (unaudited):

Shares issuable upon the exercise of outstanding common stock options and the vesting of outstanding common restricted stock units ("RSUs") granted	17,495,253
Shares available for future grant under the 2019 Plan	15,474,217
Shares available for future grant under the Employee Stock Purchase Plan	1,551,917
Shares to be issued upon conversion of a common stock warrant	56,875
Total shares of common stock reserved for future issuance	34,578,262

Common Stock Warrants

In connection with two transactions in 2012 and 2013, we granted warrants to purchase up to 55,032 shares of common stock. These warrants were exercisable at any time for a period of ten years from the date of issuance at a weighted-average exercise price of $0.37, except in the case of a warrant to purchase 20,000 shares of common stock at an exercise price of $0.45 per share that would have expired if unexercised prior to the closing of our IPO. On July 1, 2019, we issued 54,792 shares of common stock through both a cash and cashless exercise of the warrants. The impact of these exercises is immaterial to the unaudited condensed financial statements.

Separately, in 2014, we issued a warrant to purchase 56,875 shares of Series C convertible preferred stock at an exercise price of $2.64. The warrant was exercisable at any time for a period of seven years from the date of issuance. Immediately prior to and in connection with the completion of our IPO, this convertible preferred stock warrant, which was recorded as a financial liability, was converted to a warrant to purchase the same number of shares of common stock. Upon conversion, the financial liability was reclassified to the additional paid-in capital line item on our unaudited condensed balance sheet. The warrant to purchase 56,875 shares of common stock remains outstanding at September 30, 2019.

10. Equity Incentive Plans

Sequenta 2008 Stock Plan, as amended

In connection with our acquisition of Sequenta in January 2015, we assumed Sequenta's Equity Incentive Plan ("2008 Plan"), including all outstanding options and shares available for future issuance under the 2008 Plan, which, prior to the completion of our IPO, were all exercisable for Series E-1 convertible preferred stock. Upon completion of our IPO, outstanding options are now exercisable for common stock. While no shares are available for future issuance under this plan, the 2008 Plan continues to govern outstanding equity awards granted thereunder.

Adaptive 2009 Equity Incentive Plan

We adopted an equity incentive plan in 2009 ("2009 Plan") that provided for the issuance of incentive and nonqualified common stock options, and other share-based awards for employees, directors and consultants. Under the 2009 Plan, the option exercise price for incentive and nonqualified stock options were not to be less than the fair market value of our common stock at the date of grant as determined by our Board of Directors. Options granted under this plan expire no later than ten years from the grant date, and vesting was established at the time of grant. Pursuant to the terms of the 2019 Plan, any shares subject to outstanding options originally granted under the 2009 Plan that terminate, expire or lapse for any reason without the delivery of shares to the holder thereof shall become available for issuance pursuant to awards granted under the 2019 Plan. While no shares are available for future issuance under the 2009 Plan, it continues to govern outstanding equity awards granted thereunder.

2019 Equity Incentive Plan

The 2019 Plan was approved by our shareholders on June 13, 2019 and, pursuant to the resolutions adopted by our Board of Directors, became effective with an initial reserve of 15,519,170 shares immediately prior to and contingent upon the closing of our IPO. The 2019 Plan provides for the issuance of awards in the form of options and other share-based awards for employees, directors and consultants. Under the 2019 Plan, the option exercise price per share shall not be less than the fair market value of a share of stock on the grant date of the option, as defined by the 2019 Plan, unless explicitly qualified under the provisions of Section 409A or Section 424(a) of the Internal Revenue Code of 1986. Additionally, unless otherwise specified, options granted under this plan expire no later than ten years from the grant date, and vesting is established at the time of grant.

Changes in shares available for grant during the nine months ended September 30, 2019 were as follows:

	Shares Available for Grant
Shares available for grant at December 31, 2018	6,827,996
2019 Plan reserve (unaudited)	12,363,202
Options and RSUs granted (unaudited)	(4,084,656)
Options and RSUs forfeited or cancelled (unaudited)	367,675
Shares available for grant at September 30, 2019 (unaudited)	15,474,217

Stock option activity under the 2008 Plan, 2009 Plan and 2019 Plan during the nine months ended September 30, 2019 is as follows:

	Shares Subject to Outstanding Options	Weighted-Average Exercise Price per Share	Aggregate Intrinsic Value (in thousands)
Options outstanding at December 31, 2018	15,157,930	$ 4.52	$ 41,690
Options granted (unaudited)	4,071,846	9.15	
Options forfeited or cancelled (unaudited)	(367,675)	6.08	
Options exercised (unaudited)	(1,379,658)	1.67	
Options outstanding at September 30, 2019 (unaudited)	17,482,443	5.79	438,968

During the nine months ended September 30, 2019, we granted 12,810 shares of RSUs at a weighted-average grant date fair value per share of $41.63, all of which have not vested and remain outstanding at September 30, 2019.

Fair Value of Options Granted

The estimated fair value of options granted during the nine months ended September 30, 2019 and 2018 was estimated using the Black-Scholes option-pricing model with the following weighted-average assumptions:

	Nine Months Ended September 30,	
	2019	2018
	(unaudited)	
Grant date fair value	$ 10.08	$ 6.55
Expected term (in years)	6.06	6.15
Risk-free interest rate	2.4%	2.7%
Expected volatility	68.0%	68.9%
Expected dividend yield	—	—

The determination of the fair value of stock options on the date of grant using a Black-Scholes option-pricing model is affected by the estimated fair value of our common stock, as well as assumptions regarding a number of variables that are complex, subjective and generally require significant judgment to determine. The valuation assumptions were determined as follows:

Fair value of common stock—The grant date fair value of our common stock has been determined by our Board of Directors with input from management. Prior to the closing of our IPO, the grant date fair value of the common stock was determined using valuation methodologies which utilize certain assumptions, including probability weighting of events, volatility, time to liquidation, a risk-free interest rate and an assumption for a discount for lack of marketability (Level 3 inputs). In determining the fair value of the common stock, the methodologies used to estimate the enterprise value were performed using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation. For valuations of grants made after the closing of our IPO, our Board of Directors determines the fair value of each share of common stock based on the closing price of our common stock on the date of grant or other relevant determination date, as reported on The Nasdaq Global Select Market.

Expected term—The expected life of options granted to employees and non-employee directors is determined using the "simplified" method, as illustrated in ASC Topic 718, *Compensation—Stock Compensation*, as we do not have sufficient exercise history to determine a better estimate of expected term. Under this approach, the expected term is presumed to be the average of the weighted-average vesting term and the contractual term of the option.

Risk-free interest rate—We utilize a risk-free interest rate in the option valuation model based on U.S. Treasury zero-coupon issues, with remaining terms similar to the expected term of the options.

Expected volatility—As we do not have sufficient trading history for our common stock, the expected volatility is based on the historical volatility of our publicly traded industry peers utilizing a period of time consistent with our estimate of the expected term.

Expected dividend yield—We do not anticipate paying any cash dividends in the foreseeable future and, therefore, use an expected dividend yield of zero in the option valuation model.

Share-based compensation expense of $3.3 million and $2.6 million was recognized during the three months ended September 30, 2019 and 2018, respectively, and $9.7 million and $8.1 million was recognized during the nine months ended September 30, 2019 and 2018, respectively.

The compensation costs for the three and nine months ended September 30, 2019 and 2018, respectively, related to stock options and RSUs are included on our unaudited condensed statements of operations as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(unaudited)			
Cost of revenue	$ 133	$ 97	$ 376	$ 273
Research and development	943	700	2,838	2,168
Sales and marketing	798	620	2,647	2,169
General and administration	1,461	1,136	3,852	3,493
Total share-based compensation expense	$ 3,335	$ 2,553	$ 9,713	$ 8,103

At September 30, 2019, unrecognized share-based compensation expense related to unvested stock options was $34.5 million, which is expected to be recognized over a remaining weighted-average period of 3.06 years. Additionally, at September 30, 2019, unrecognized share-based compensation expense related to unvested RSUs was $0.3 million, which is expected to be recognized over a remaining weighted-average period of 0.73 years.

11. Net Loss Per Share Attributable to Common Shareholders

Net Loss Per Share

The following table sets forth the computation of the basic and diluted net loss per share attributable to common shareholders for the three and nine months ended September 30, 2019 and 2018, respectively (in thousands, except shares and per share amounts):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(unaudited)			
Net loss	$ (13,950)	$ (8,292)	$ (47,995)	$ (33,176)
Fair value adjustments to redemption value for Series E-1 convertible preferred stock options	—	(4)	(964)	(2)
Net loss attributable to common shareholders, basic and diluted	$ (13,950)	$ (8,296)	$ (48,959)	$ (33,178)
Weighted-average shares used in computing net loss per share	124,285,686	12,620,010	50,552,389	12,430,535
Net loss per share attributable to common shareholders, basic and diluted	$ (0.11)	$ (0.66)	$ (0.97)	$ (2.67)

Since we were in a loss position for all periods presented, basic net loss per share attributable to common shareholders is the same as diluted net loss per share attributable to common shareholders, as the inclusion of all potential shares of common stock outstanding would have been anti-dilutive. The following weighted-average common stock equivalents were excluded from the calculation of diluted net loss per share attributable to common shareholders for the three and nine months ended September 30, 2019 and 2018, respectively, as they had an anti-dilutive effect:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(unaudited)			
Convertible preferred stock (on as if converted basis)	—	92,790,094	61,641,506	92,764,348
Stock options issued and outstanding	17,466,409	14,801,784	17,096,516	14,489,718
Unvested restricted stock units	7,380	—	2,487	—
Common stock warrants	56,875	55,032	55,653	55,032
Convertible preferred stock warrant	—	56,875	37,708	56,875
Total	17,530,664	107,703,785	78,833,870	107,365,973

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

You should read the following discussion and analysis of our financial condition and results of operations together with our unaudited condensed financial statements and related notes and the other financial information appearing elsewhere in this report, as well as the other financial information we file with the SEC from time to time. Some of the information contained in this discussion and analysis or set forth elsewhere in this report, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this report, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are advancing the field of immune-driven medicine by harnessing the inherent biology of the adaptive immune system to transform the diagnosis and treatment of disease. Our immune medicine platform applies our proprietary technologies to read the diverse genetic code of a patient's immune system and understand precisely how it detects and treats disease in that patient. We capture these insights in our dynamic clinical immunomics database, which is underpinned by computational biology and machine learning, and use them to develop and commercialize clinical products and services that we are tailoring to each individual patient. We have two commercial products and services and a robust pipeline of clinical products and services that we are designing to diagnose, monitor and enable the treatment of diseases such as cancer, autoimmune conditions and infectious diseases.

Our immune medicine platform is the foundation for our expanding suite of products and services. The cornerstone of our platform and core immunosequencing product, immunoSEQ, serves as our underlying research and development engine and generates revenue from academic and biopharmaceutical customers. Our first clinical diagnostic product, clonoSEQ, is the first test authorized by the FDA for the detection and monitoring of MRD in patients with MM and ALL and is being validated for patients with other blood cancers. Leveraging our collaboration with Microsoft to create the TCR-Antigen Map, we are also developing a diagnostic product, immunoSEQ Dx, that may enable early detection of many diseases from a single blood test. Our therapeutic product candidates, being developed under the Genentech Agreement, leverage our platform to identify specific immune cells to develop into cellular therapies in oncology.

Since our inception, we have devoted a majority of our resources to research and development activities to develop our immune medicine platform, which enables the delivery of our products and services for life sciences research, clinical diagnostics and drug discovery customers.

For our life science research customers, we provide two categories of products and services using immunoSEQ, our core sequencing and immunomics tracking technology. First, we provide immunosequencing services, the revenue from which we record as sequencing revenue. Second, we provide certain research customers professional support, for which we may receive payments upon those customers achieving specified milestones. We record these support activities as development revenue.

For our clinical diagnostics customers, we sell our clonoSEQ diagnostic tests, which include our immunosequencing services and are thus recorded as sequencing revenue. In the future, we intend to sell other diagnostics products and services, which we also expect to record as sequencing revenue.

For our current drug discovery collaborator, Genentech, we screen, identify and characterize TCRs in support of our collaboration. We record revenue from this collaboration as development revenue.

Historically, we have sold immunoSEQ as a fee-for-service offering to academic centers and biopharmaceutical customers and further deepened those relationships over time by supporting their development initiatives. These research offerings have comprised the vast majority of our revenue to date, although our business is pursuing broader opportunities. As we continue to expand the use of our clonoSEQ diagnostic tests, develop and commercialize immunoSEQ Dx and develop and commercialize therapeutic product candidates with our drug discovery collaborator, we expect our mix of revenue to shift to clinical products and services, which we believe will become our largest sources of revenue.

We are actively pursuing opportunities to deepen our relationships with current customers and initiate relationships with new customers. We have an experienced, specialty salesforce that is targeting department heads, laboratory directors, principal investigators, core facility directors, clinicians, payors and research scientists and pathologists at leading academic institutions, biopharmaceutical companies, research institutions and contract research organizations. As MRD assessment becomes standard practice for patient management across a range of blood cancers, we believe it will be essential for clinicians and patients to have access to a highly accurate, sensitive and standardized MRD assessment tool. We are focused on establishing and maintaining collaborative relationships with payors, developing health economic evidence and building billing and patient access infrastructure to expand reimbursement coverage for our clinical diagnostics. We continue to seek expanded coverage of our clonoSEQ diagnostic test and in 2019 have successfully expanded coverage through contractual agreements or positive medical policies with Medicare and several of the largest national private health insurers in the United States.

We generated revenue of $26.1 million and $60.9 million for the three and nine months ended September 30, 2019, respectively, and $17.2 million and $38.5 million for the three and nine months ended September 30, 2018, respectively. Our net losses were $14.0 million and $48.0 million for the three and nine months ended September 30, 2019, respectively, and $8.3 million and $33.2 million for the three and nine months ended September 30, 2018, respectively. We have funded our operations to date principally from the sale of common and convertible preferred stock, and to a lesser extent sequencing and development revenue. As of September 30, 2019 and December 31, 2018, we had cash, cash equivalents and marketable securities of $708.7 million and $165.0 million, respectively. In December 2018, we entered into the Genentech Agreement pursuant to which we received a $300.0 million initial upfront payment in February 2019, may be eligible to receive approximately $1.8 billion over time, including payments upon achievement of specified development, regulatory and commercial milestones, and may receive additional royalties on sales of products commercialized under this agreement.

Initial Public Offering

On July 1, 2019, we completed our IPO in which we issued and sold 17,250,000 shares of common stock, including shares issued upon the exercise in full of the underwriters' over-allotment option, at a public offering price of $20.00 per share. We received $315.9 million in net proceeds, after deducting underwriting discounts and commissions of $24.1 million and offering expenses of $5.0 million. Immediately prior to the completion of our IPO, 93,039,737 shares of convertible preferred stock then outstanding converted into an equivalent number of shares of common stock.

Components of Results of Operations

Revenue

We derive our revenue from two sources: (i) sequencing revenue and (ii) development revenue.

Sequencing revenue. Sequencing revenue reflects the amounts generated from providing sequencing services through immunoSEQ to research customers and from providing testing services through clonoSEQ to clinical and research customers.

For our research customers, which include biopharmaceutical customers and academic institutions, delivery of the sequencing results may include some level of professional support and analysis. Terms with biopharmaceutical customers generally include non-refundable upfront payments, which we record as deferred revenue. For all customers, we recognize revenue as we deliver sequencing results. From time to time, we offer discounts in order to gain rights and access to certain datasets. Revenue is recognized net of these discounts and costs associated with these services are reflected in cost of revenue.

For our clinical customers, we derive revenue from providing our clonoSEQ test report to ordering physicians. We bill commercial payors and medical institutions based on tests delivered to ordering physicians. Amounts paid for clonoSEQ diagnostic tests by commercial payors and medical institutions vary based on respective reimbursement rates and patient responsibilities, which may vary from our targeted list price. To date, the majority of our clonoSEQ diagnostic test revenue has been received from medical institutions. We recognize clinical revenue by evaluating customer payment history, contracted reimbursement rates, if applicable, and other adjustments to estimate the amount of revenue that is collectible. As of December 31, 2018, we did not have reimbursement available to us through any government payors for clonoSEQ.

In January 2019, clonoSEQ received Medicare coverage aligned with the FDA label and NCCN guidelines for longitudinal monitoring in MM and ALL. We bill Medicare for an episode of treatment when we deliver the first eligible test results. This billing contemplates all necessary tests required during a patient's treatment cycle, which is currently estimated at approximately four tests per patient, including the initial sequence identification test. Revenue is recognized at the time the initial billable test result is delivered and is based upon cumulative tests delivered to date. Any unrecognized revenue from the initial billable test is recorded as deferred revenue and recognized as we deliver the remaining tests in a patient's treatment cycle.

Development revenue. Development revenue primarily represents regulatory or development support services, other than sequencing revenue, that we provide to biopharmaceutical customers who seek access to our platform to support their therapeutic development activities. Additionally, we generate development revenue from the achievement of regulatory milestones. We enter into collaboration and similar agreements with these customers. When these agreements include sequencing activities, we separately classify those activities as sequencing revenue. These agreements may also include substantial non-refundable upfront payments, which we recognize as development revenue over time as we perform the respective services.

We expect revenue to increase over the long term, particularly as the mix of revenue migrates to clinical diagnostics and drug discovery. The pace by which this mix migrates will be determined by the level of customer adoption and frequency of use of our products and services. Our revenue may fluctuate from period to period due to the uncertain nature of delivery of our products and services and milestone achievement.

Cost of Revenue

Cost of revenue includes the cost of materials, personnel-related expenses (comprised of salaries, benefits and share-based compensation), shipping and handling, equipment and allocated facility costs associated with processing samples and professional support for our sequencing revenue. Allocated facility costs include depreciation of laboratory equipment, allocated facility occupancy and information technology costs. Costs associated with processing samples are recorded as expense, regardless of the timing of revenue recognition. As such, cost of revenue and related volume does not always trend in the same direction as revenue recognition and related volume.

We expect cost of revenue to increase in absolute dollars as we grow our sequencing volume but the cost per sample to decrease over the long term due to the efficiencies we may gain as sequencing volume increases from improved utilization of our laboratory capacity, automation and other value engineering initiatives.

Research and Development Expenses

Research and development expenses consist of laboratory materials costs, personnel-related expenses, allocated facility costs, information technology and contract service expenses. Research and development activities support further development and refinement of existing assays and products, discovery of new technologies and investments into our immune medicine platform. We also include in research and development expenses the costs associated with software development activities to support laboratory scaling and workflow, as well as development of applications to support future commercial opportunities. We are currently conducting research and development activities for several products and services, and we typically use our laboratory materials, personnel, facilities, information technology and other development resources across multiple development programs. Additionally, certain of these research and development activities benefit more than one of our product opportunities. We do not track research and development expenses by specific product candidates.

A component of our research and development activities is supporting clinical and analytical validations to obtain regulatory approval for future clinical products and services. Additionally, the costs to support our Genentech Agreement are a component of our research and development activities. Some of these activities have generated and may in the future generate development revenue.

We expect our research and development expenses to continue to increase in absolute dollars as we innovate and expand the application of our platform. However, we expect research and development expenses to decrease as a percentage of revenue in the long term, although the percentage may fluctuate from period to period due to the timing and extent of our development and commercialization efforts.

Sales and Marketing Expenses

Sales and marketing expenses consist primarily of personnel-related expenses for commercial sales, account management, marketing, reimbursement, medical education and business development personnel that support commercialization of our platform products. In addition, these expenses include external costs such as advertising expenses, customer education and promotional expenses, market analysis expenses, conference fees, travel expenses and allocated facility costs.

We expect our sales and marketing expenses to increase in absolute dollars as we expand our commercial sales, marketing and business development teams and increase marketing activities to drive awareness and adoption of our products and services. However, we expect sales and marketing expenses to decrease as a percentage of revenue in the long term, subject to fluctuations from period to period due to the timing and magnitude of these expenses.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel-related expenses, including share-based compensation, salaries and benefits for our personnel in executive, legal, finance and accounting, human resources and other administrative functions, including third-party billing services. In addition, these expenses include insurance costs, external legal costs, accounting and tax service expenses, consulting fees and allocated facilities costs.

We expect our general and administrative expenses to continue to increase in absolute dollars as we increase headcount and incur costs associated with operating as a public company, including expenses related to legal, accounting, regulatory matters, maintaining compliance with exchange listing and requirements of the SEC, director and officer insurance premiums and investor relations. Though expected to increase in absolute dollars, we expect these expenses to decrease as a percentage of revenue in the long term as revenue increases.

Adaptive Biotechnologies Corporation

Statements of Operations Data and Other Financial and Operating Data

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(unaudited) (in thousands, except share and per share amounts)			
Statements of Operations Data:				
Revenue				
Sequencing revenue	$ 11,683	$ 8,463	$ 29,631	$ 22,524
Development revenue	14,375	8,725	31,231	15,947
Total revenue	26,058	17,188	60,862	38,471
Operating expenses				
Cost of revenue	5,601	5,360	16,323	14,393
Research and development	20,506	9,783	49,516	28,090
Sales and marketing	9,099	6,039	25,813	16,415
General and administrative	8,477	4,739	22,143	13,914
Amortization of intangible assets	428	428	1,270	1,271
Total operating expenses	44,111	26,349	115,065	74,083
Loss from operations	(18,053)	(9,161)	(54,203)	(35,612)
Interest and other income, net	4,103	869	6,208	2,436
Net loss	(13,950)	(8,292)	(47,995)	(33,176)
Fair value adjustment to Series E-1 convertible preferred stock options	—	(4)	(964)	(2)
Net loss attributable to common shareholders	$ (13,950)	$ (8,296)	$ (48,959)	$ (33,178)
Net loss per share attributable to common shareholders, basic and diluted	$ (0.11)	$ (0.66)	$ (0.97)	$ (2.67)
Weighted-average shares used in computing net loss per share attributable to common shareholders, basic and diluted	124,285,686	12,620,010	50,552,389	12,430,535
Other Financial and Operating Data:				
Adjusted EBITDA (1)	$ (12,655)	$ (5,143)	$ (38,774)	$ (23,102)

(1) Adjusted EBITDA is a non-GAAP financial measure that we define as net loss adjusted for interest and other income, net, income tax benefit (expense), depreciation and amortization and share-based compensation expenses. Please refer to "Adjusted EBITDA" below for a reconciliation between Adjusted EBITDA and net loss, the most directly comparable GAAP financial measure, and a discussion about the limitations of Adjusted EBITDA.

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

Revenue

(in thousands, except percentages)	Three Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Revenue						
Sequencing revenue	$ 11,683	$ 8,463	$ 3,220	38%	45%	49%
Development revenue	14,375	8,725	5,650	65	55	51
Total revenue	$ 26,058	$ 17,188	$ 8,870	52%	100%	100%

Total revenue was $26.1 million for the three months ended September 30, 2019 compared to $17.2 million for the three months ended September 30, 2018, representing an increase of $8.9 million, or 52%.

Sequencing revenue increased to $11.7 million for the three months ended September 30, 2019, representing an increase of $3.2 million, or 38%. The increase in sequencing revenue was primarily attributable to an increase of $2.0 million in revenue generated from biopharmaceutical and academic customers, including an increase in revenue recognized from cancelled projects of $0.5 million, and a $1.2 million increase in revenue generated from clinical customers.

Research sequencing volume increased by 25% to 10,618 sequences delivered in the three months ended September 30, 2019 from 8,466 sequences delivered in the three months ended September 30, 2018. Clinical sequencing volume increased by 36% to 2,551 clinical tests delivered in the three months ended September 30, 2019 from 1,879 clinical tests delivered in the three months ended September 30, 2018.

Development revenue increased to $14.4 million for the three months ended September 30, 2019, representing an increase of $5.7 million, or 65%. The increase was primarily attributable to $11.4 million of revenue generated from the Genentech Agreement, partially offset by a $3.8 million decrease in revenue generated from MRD development agreements, largely due to a $4.0 million decrease in regulatory milestones, and a $1.9 million decrease in revenue generated from translational agreements.

Cost of Revenue

(in thousands, except percentages)	Three Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Cost of revenue	$ 5,601	$ 5,360	$ 241	4%	21%	31%

Cost of revenue was $5.6 million for the three months ended September 30, 2019, compared to $5.4 million for the three months ended September 30, 2018, representing an increase of $0.2 million, or 4%. The increase in cost of revenue was primarily attributable to a $0.4 million increase in the cost of overhead due to the production laboratory expansion and increased sample volumes, partially offset by a $0.1 million decrease in cost of materials primarily due to mix to lower cost assays.

Research and Development

(in thousands, except percentages)	Three Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Research and development	$20,506	$ 9,783	$ 10,723	110%	79%	57%

The following table presents disaggregated research and development expenses by cost classification for the periods presented:

(in thousands)	Three Months Ended September 30,		Change
	2019	2018	
		(unaudited)	
Research and development materials and allocated production laboratory expenses	$ 10,313	$ 3,534	$ 6,779
Personnel expenses	7,146	4,631	2,515
Allocable facilities and information technology expenses	900	701	199
Software and cloud services expenses	810	404	406
Depreciation and other expenses	1,337	513	824
Total	$ 20,506	$ 9,783	$ 10,723

Research and development expenses were $20.5 million for the three months ended September 30, 2019, compared to $9.8 million for the three months ended September 30, 2018, representing an increase of $10.7 million, or approximately 110%. The increase was primarily attributable to $6.8 million in additional cost of materials and allocated production laboratory expenses primarily related to supporting our TCR drug discovery efforts, TCR-Antigen Map development and clonoSEQ efforts, and a $2.5 million increase in personnel costs. The overall change also resulted from a $0.8 million increase in depreciation and other expenses, $0.4 million increase in software and cloud services and $0.2 million increase in allocated facilities and information technology expenses.

Sales and Marketing

(in thousands, except percentages)	Three Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Sales and marketing	$ 9,099	$ 6,039	$ 3,060	51%	35%	35%

Sales and marketing expenses were $9.1 million for the three months ended September 30, 2019, compared to $6.0 million for the three months ended September 30, 2018, representing an increase of $3.1 million, or approximately 51%. The increase was primarily attributable to $2.1 million in additional personnel costs, $0.6 million in additional customer event expenses, $0.2 million in additional consulting fees and $0.1 million in additional travel and entertainment related expenses.

General and Administrative

(in thousands, except percentages)	Three Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
General and administrative	$ 8,477	$ 4,739	$ 3,738	79%	33%	28%

General and administrative expenses were $8.5 million for the three months ended September 30, 2019, compared to $4.7 million for the three months ended September 30, 2018, representing an increase of approximately $3.7 million, or approximately 79%. The increase was primarily attributable to $1.7 million in additional personnel costs, $1.0 million in additional insurance expenses primarily related to public company director and officer coverage, $0.2 million in additional travel and entertainment related expenses and $0.2 million in additional legal, tax and accounting fees.

Interest and Other Income, Net

(in thousands, except percentages)	Three Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Interest and other income, net	$ 4,103	$ 869	$ 3,234	372%	16%	5%

Interest and other income, net was $4.1 million for the three months ended September 30, 2019, compared to $0.9 million for the three months ended September 30, 2018, representing an increase of $3.2 million, or approximately 372%. The increase was primarily attributable to an increase in interest earned on and investment amortization of a larger portfolio.

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

Revenue

(in thousands, except percentages)	Nine Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Revenue						
Sequencing revenue	$ 29,631	$ 22,524	$ 7,107	32%	49%	59%
Development revenue	31,231	15,947	15,284	96	51	41
Total revenue	$ 60,862	$ 38,471	$ 22,391	58%	100%	100%

Total revenue was $60.9 million for the nine months ended September 30, 2019 compared to $38.5 million for the nine months ended September 30, 2018, representing an increase of $22.4 million, or 58%.

Sequencing revenue increased to $29.6 million for the nine months ended September 30, 2019, representing an increase of $7.1 million, or 32%. The increase in sequencing revenue was primarily attributable to an increase of $4.3 million in revenue generated from biopharmaceutical and academic customers, including an increase in revenue recognized from cancelled customer projects of $1.1 million, and a $2.8 million increase in revenue generated from clinical customers.

Research sequencing volume increased by 8% to 24,593 sequences delivered in the nine months ended September 30, 2019 from 22,781 sequences delivered in the nine months ended September 30, 2018. Clinical sequencing volume increased by 41% to 6,950 clinical tests delivered in the nine months ended September 30, 2019 from 4,932 clinical tests delivered in the nine months ended September 30, 2018.

Development revenue increased to $31.2 million for the nine months ended September 30, 2019, representing an increase of $15.3 million, or 96%. The increase was primarily attributable to $26.2 million of revenue generated from the Genentech Agreement, partially offset by a $6.0 million decrease in revenue generated from translational agreements and a $4.9 million decrease in revenue generated from MRD development agreements, inclusive of a $4.0 million decrease in regulatory milestones.

Cost of Revenue

(in thousands, except percentages)	Nine Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Cost of revenue	$ 16,323	$ 14,393	$ 1,930	13%	27%	37%

Cost of revenue was $16.3 million for the nine months ended September 30, 2019, compared to $14.4 million for the nine months ended September 30, 2018, representing an increase of $1.9 million, or 13%. The increase in cost of revenue was primarily attributable to an increase of $1.9 million in the cost of overhead due to the production laboratory expansion and increased sample volumes, partially offset by a $0.1 million decrease in computer and software expenses.

Research and Development

(in thousands, except percentages)	Nine Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Research and development	$ 49,516	$ 28,090	$ 21,426	76%	81%	73%

The following table presents disaggregated research and development expenses by cost classification for the periods presented:

(in thousands)	Nine Months Ended September 30,		Change
	2019	2018	
		(unaudited)	
Research and development materials and allocated production laboratory expenses	$ 22,962	$ 10,712	$ 12,250
Personnel expenses	19,518	13,045	6,473
Allocable facilities and information technology expenses	2,503	2,085	418
Software and cloud services expenses	1,538	857	681
Depreciation and other expenses	2,995	1,391	1,604
Total	$ 49,516	$ 28,090	$ 21,426

Research and development expenses were $49.5 million for the nine months ended September 30, 2019, compared to $28.1 million for the nine months ended September 30, 2018, representing an increase of $21.4 million, or 76%. The increase was primarily attributable to $12.3 million in additional cost of materials and allocated production laboratory expenses primarily related to supporting our TCR drug discovery efforts and TCR-Antigen Map development, and $6.5 million in additional personnel costs. The overall change also resulted from increases in depreciation and other expenses of $1.6 million, additional software and cloud service costs of $0.7 million and an increase in allocable facilities and information technology costs of $0.4 million.

Sales and Marketing

(in thousands, except percentages)	Nine Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
			(unaudited)			
Sales and marketing	$ 25,813	$ 16,415	$ 9,398	57%	42%	43%

Sales and marketing expenses were $25.8 million for the nine months ended September 30, 2019, compared to $16.4 million for the nine months ended September 30, 2018, representing an increase of $9.4 million, or 57%. The increase was primarily attributable to $6.0 million in additional personnel costs, $1.8 million in additional travel, entertainment and customer event related expenses and $1.2 million in additional consulting and marketing fees. An additional $0.2 million in computer and software expenses and $0.1 million increase in medical advisory expenses also contributed to the overall increase.

General and Administrative

(in thousands, except percentages)	Nine Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
	(unaudited)					
General and administrative	$ 22,143	$ 13,914	$ 8,229	59%	36%	36%

General and administrative expenses were $22.1 million for the nine months ended September 30, 2019, compared to $13.9 million for the nine months ended September 30, 2018, representing an increase of $8.2 million, or 59%. The increase was primarily attributable to $3.4 million in additional personnel costs, $1.3 million in additional business taxes largely due to the Genentech upfront payment received in February 2019, a $1.1 million increase in insurance expense primarily related to public company director and officer coverage and $1.0 million in additional legal, tax, accounting and consultant fees.

Interest and Other Income, Net

(in thousands, except percentages)	Nine Months Ended September 30,		Change		Percent of Revenue	
	2019	2018	$	%	2019	2018
	(unaudited)					
Interest and other income, net	$ 6,208	$ 2,436	$ 3,772	155%	10%	6%

Interest and other income, net was $6.2 million for the nine months ended September 30, 2019, compared to $2.4 million for the nine months ended September 30, 2018, representing an increase of $3.8 million, or approximately 155%. The increase was primarily attributable to a $6.1 million increase in interest earned on and investment amortization of a larger portfolio, partially offset by the $2.3 million impact of revaluing a convertible preferred stock warrant liability in 2019.

Adjusted EBITDA

Adjusted EBITDA is a non-GAAP financial measure that we define as net loss adjusted for interest and other income, net, income tax benefit (expense), depreciation and amortization and share-based compensation expenses.

Management uses Adjusted EBITDA to evaluate the financial performance of our business and the effectiveness of our business strategies. We present Adjusted EBITDA because we believe it is frequently used by analysts, investors and other interested parties to evaluate companies in our industry and it facilitates comparisons on a consistent basis across reporting periods. Further, we believe it is helpful in highlighting trends in our operating results because it excludes items that are not indicative of our core operating performance.

Adjusted EBITDA has limitations as an analytical tool and you should not consider it in isolation, or as a substitute for analysis of our results as reported under GAAP. We may in the future incur expenses similar to the adjustments in the presentation of Adjusted EBITDA. In particular, we expect to incur meaningful share-based compensation expense in the future. Other limitations include that Adjusted EBITDA does not reflect:

- all expenditures or future requirements for capital expenditures or contractual commitments;
- changes in our working capital needs;
- income tax expense (benefit), which may be a necessary element of our costs and ability to operate;
- the costs of replacing the assets being depreciated and amortized, which will often have to be replaced in the future;
- the non-cash component of employee compensation expense; and
- the impact of earnings or charges resulting from matters we consider not to be reflective, on a recurring basis, of our ongoing operations.

In addition, Adjusted EBITDA may not be comparable to similarly titled measures used by other companies in our industry or across different industries.

The following is a reconciliation of our net loss to Adjusted EBITDA for the three and nine months ended September 30, 2019 and 2018, respectively (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(unaudited)			
Net loss	$ (13,950)	$ (8,292)	$ (47,995)	$ (33,176)
Interest and other income, net	(4,103)	(869)	(6,208)	(2,436)
Income tax (benefit) expense	—	—	—	—
Depreciation and amortization expense	2,063	1,465	5,716	4,407
Share-based compensation expense (1)	3,335	2,553	9,713	8,103
Adjusted EBITDA	$ (12,655)	$ (5,143)	$ (38,774)	$ (23,102)

(1) Represents share-based compensation expense related to option and RSU awards. See Note 10 to our unaudited condensed financial statements appearing elsewhere in this report for details on our share-based compensation expense.

Liquidity and Capital Resources

We have incurred losses since inception and have incurred negative cash flows from operations from inception through December 31, 2018. As of September 30, 2019, we had an accumulated deficit of $344.9 million.

We have funded our operations to date principally from the sale of convertible preferred and common stock, including the sale of common stock in our IPO, and, to a lesser extent, sequencing and development revenue. In December 2018, we entered into the Genentech Agreement pursuant to which we received a $300.0 million initial upfront payment in February 2019, may receive approximately $1.8 billion over time, including payments upon achievement of specified development, regulatory and commercial milestones, and may receive additional royalties on sales of products commercialized under this agreement. As of September 30, 2019, we had cash, cash equivalents and marketable securities of $708.7 million.

We believe our cash flows from operations and our existing cash, cash equivalents and marketable securities will be sufficient to fund our operating expenses and capital expenditure requirements through at least the next 12 months. We may consider raising additional capital to expand our business, to pursue strategic investments, to take advantage of financing opportunities or for other reasons.

We plan to utilize the existing cash, cash equivalents and marketable securities on hand primarily to fund our commercial and marketing activities associated with our clinical products and services, continued research and development initiatives for our pipeline candidates and drug discovery initiatives, ongoing investments into our immune medicine platform and scaling of our laboratory operations with our anticipated growth. Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation. Currently, our funds are held in money market funds and marketable securities consisting of U.S. government debt securities, commercial paper and corporate bonds.

As revenue from sales of immunoSEQ and clonoSEQ is expected to grow, we expect our accounts receivable and inventory balances to increase. Any increase in accounts receivable and inventory may not be completely offset by increases in accounts payable and accrued expenses, which could result in greater working capital requirements. Moreover, we expect to incur additional costs associated with operating as a public company, including expenses related to legal, accounting, regulatory matters and exchange listing and SEC compliance matters, as well as director and officer insurance premiums and investor relations.

If our available cash, cash equivalents and marketable securities balances and anticipated cash flow from operations are insufficient to satisfy our liquidity requirements, we may seek to sell additional equity or convertible debt securities, enter into a credit facility or another form of third-party funding or seek other debt financing. The sale of equity and convertible debt securities may result in dilution to our shareholders and, in the case of preferred equity securities or convertible debt, those securities could provide for rights, preferences or privileges senior to those of our common stock. The terms of debt securities issued or borrowings pursuant to a credit agreement could impose significant restrictions on our operations. Additional capital may not be available on reasonable terms, or at all.

Cash Flows

The following table summarizes our uses and sources of cash for the nine months ended September 30, 2019 and 2018 (in thousands):

	Nine Months Ended September 30,	
	2019	2018
	(unaudited)	
Net cash provided by (used in) operating activities	$ 232,195	$ (26,849)
Net cash used in investing activities	(528,377)	(26,893)
Net cash provided by financing activities	318,170	970

Operating Activities

Cash provided by operating activities during the nine months ended September 30, 2019 was $232.2 million, which was primarily attributable to a net change in our operating assets and liabilities of $266.1 million, non-cash share-based compensation of $9.7 million, non-cash depreciation and amortization of $2.2 million and a $2.3 million fair value adjustment of our convertible preferred stock warrant liability caused by an increase in valuation of our common stock, partially offset by a net loss of $48.0 million. The net change in our operating assets and liabilities reflects an increase in deferred revenue of $276.2 million, primarily due to the $300.0 million upfront payment by Genentech, and an increase in accounts payable and accrued liabilities of $3.1 million, primarily due to increased headcount and growth in operating expenditures, as well as the timing of vendor payments. These increases were partially offset by an increase in accounts receivable of $4.4 million, primarily due to an increase in clinical billings, as well as an increase in sequencing revenue paid in arrears rather than upfront by biopharmaceutical customers, an increase in prepaid expenses and other current assets of $6.8 million, primarily due to prepaid insurance and prepaid software, an increase in inventory of $0.8 million to support the growth in laboratory operations, reductions in deferred rent of $0.6 million due to increased rent payments, and a $0.5 million security deposit.

Cash used in operating activities during the nine months ended September 30, 2018 was $26.8 million, which was primarily attributable to a net loss of $33.2 million and a net reduction in our operating assets and liabilities of $5.3 million, partially offset by non-cash share-based compensation of $8.1 million and non-cash depreciation and amortization of $3.6 million. The net reduction in our operating assets and liabilities primarily reflects an increase in accounts receivable of $6.8 million, primarily due to achievement of a $6.0 million regulatory milestone, an increase in inventory of $2.3 million to support growth in revenue and research and development activities, an increase in prepaid expenses and other current assets of $0.9 million, primarily due to prepaid software and prepaid conferences, and reductions in deferred rent of $0.4 million due to increased rent payments, all of which were partially offset by a $3.6 million increase in deferred revenue, primarily due to upfront payments from MRD biopharmaceutical agreements, and an increase in accounts payable and accrued liabilities of $1.7 million, primarily due to growth in operating expenditures and timing of vendor payments.

Investing Activities

Cash used in investing activities during the nine months ended September 30, 2019 was $528.4 million, which was primarily attributable to purchases of marketable securities of $772.1 million and purchases of property and equipment of $8.8 million, partially offset by proceeds from maturities of marketable securities of $252.5 million.

Cash used in investing activities during the nine months ended September 30, 2018 was $26.9 million, which was primarily attributable to purchases of marketable securities of $137.1 million and purchases of property and equipment of $3.8 million, partially offset by proceeds from maturities of marketable securities of $114.0 million.

Financing Activities

Cash provided by financing activities during the nine months ended September 30, 2019 was $318.2 million, which was primarily attributable to proceeds from our IPO, net of underwriting discounts and commissions, of $320.9 million, and proceeds from the exercise of stock options of $2.3 million, partially offset by the payment of deferred IPO costs of $5.0 million.

Cash provided by financing activities during the nine months ended September 30, 2018 was $1.0 million, which was primarily attributable to proceeds from the exercise of stock options.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations as of September 30, 2019, which represents contractually committed future obligations (in thousands):

	Expected Payments by Period				
	Total	2019	2020-2021	2022-2023	More Than 5 Years
			(unaudited)		
Operating lease obligations[1]	$ 140,845	$ 901	$ 10,708	$ 21,666	$ 107,570
Purchase commitments[2]	13,669	5,208	6,526	1,696	240
Total	$ 154,514	$ 6,109	$ 17,234	$ 23,362	$ 107,810

(1) We lease office and laboratory space in Seattle, Washington and South San Francisco, California. Please see Note 8 of our unaudited condensed financial statements for additional information pertaining to operating lease commitments, including the amendment to our headquarters' lease and the new lease we entered into in August 2019.

(2) Purchase commitments include commitments for cloud data storage through our collaboration with Microsoft, commitments to support clinical trials utilizing clonoSEQ, software and service license commitments, and minimum commitments for laboratory material suppliers.

Net Operating Loss Carryforwards

Utilization of our NOL carryforwards and credits may be subject to a substantial annual limitation due to the ownership change limitations provided by Section 382 of the Internal Revenue Code of 1986 ("Section 382") and similar state provisions. The annual limitation may result in the expiration of NOL carryforwards and credits before utilization. If there should be an ownership change, our ability to utilize our NOL carryforwards and credits could be limited. We have completed a Section 382 analysis and have determined there are no permanent limitations on the utilization of approximately $186.9 million of our federal NOLs as of December 31, 2018. Based on the available objective evidence, management determined that it was more likely than not that the net deferred tax assets would not be realizable as of December 31, 2018. Accordingly, management applied a full valuation allowance against net deferred tax assets as of December 31, 2018.

Off-Balance Sheet Arrangements

As of September 30, 2019 and December 31, 2018, we have not had any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Critical Accounting Policies and Estimates

We have prepared our financial statements in accordance with GAAP. Our preparation of these financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts of assets, liabilities and related disclosures at the date of the financial statements, as well as revenue and expense recorded during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and or other relevant assumptions that we believe to be reasonable under the circumstances. Estimates are used in several areas, including, but not limited to, estimates of progress to date for certain performance obligations and transaction price for certain contracts with customers, share-based compensation, including the fair value of stock, the provision for income taxes, including related reserves, and goodwill, among others. These estimates generally involve complex issues and require judgments, involve the analysis of historical results and prediction of future trends, can require extended periods of time to resolve and are subject to change from period to period. Actual results may differ materially from management's estimates.

While our significant accounting policies are described in more detail in our Prospectus, as well as in Note 2 to our unaudited condensed financial statements included elsewhere in this report, we believe the following accounting policies are critical to the judgments and estimates used in the preparation of our financial statements:

- revenue recognition;
- share-based compensation;
- common stock valuations; and
- goodwill.

There have been no material changes to our critical accounting policies and estimates as previously disclosed in our Prospectus.

JOBS Act Accounting Election

We are an "emerging growth company" within the meaning of the JOBS Act. The JOBS Act allows an emerging growth company to delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards apply to private companies. We have elected to use this extended transition period and, as a result, our financial statements may not be comparable to companies that comply with public company effective dates. We also intend to rely on other exemptions provided by the JOBS Act, including not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act.

We will remain an emerging growth company until the earliest of (1) the last day of the fiscal year following the fifth anniversary of the closing of the IPO, (2) the last day of the fiscal year in which we have total annual gross revenue of at least $1.07 billion, (3) the last day of the fiscal year in which we are deemed to be a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act of 1934, as amended ("Exchange Act"), which would occur if the market value of our common stock held by non-affiliates exceeded $700.0 million as of the last business day of the second fiscal quarter of such year or (4) 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 to the unaudited condensed financial statements included elsewhere in this report for more information.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Risk

We are exposed to market risk for changes in interest rates related primarily to our cash and cash equivalents and marketable securities. As of September 30, 2019, we had cash and cash equivalents of $74.9 million, held primarily in cash deposits and money market funds. Our marketable securities are held in U.S. government debt securities, commercial paper and corporate bonds. As of September 30, 2019, we had short-term and long-term marketable securities of $633.8 million. Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of interest rates in the United States. As of September 30, 2019, a hypothetical 100 basis point increase in interest rates would have resulted in an approximate $4.0 million decline of the fair value of our available-for-sale securities. This estimate is based on a sensitivity model that measures market value changes when changes in interest rates occur.

Item 4. Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15 under the Exchange Act as of the end of the period covered by this report. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of September 30, 2019. There was not any change in our internal control over financial reporting (as such term is defined in Rules 13a-15(f) under the Exchange Act) during the quarter ended September 30, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, we may be subject to legal proceedings. We are not currently a party to or aware of any proceedings that we believe will have, individually or in the aggregate, a material adverse effect on our business, financial condition or results of operations. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. Our risk factors are set forth in our Prospectus and incorporated herein by reference, and there have been no material changes to such risk factors. You should carefully consider the risks and uncertainties we describe in the Prospectus, together with all other information in this report, including our unaudited condensed financial statements and related notes and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this report, before investing in our common stock. Any of the risk factors we describe in the Prospectus could adversely affect our business, financial condition, results of operations or prospects. The market price of our common stock could decline if one or more of these risks or uncertainties actually occur, causing you to lose all or part of your investment in our common stock. Additional risks that we currently do not know about or that we currently believe to be immaterial may also impair our business, financial condition, operating results and prospects.

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

Sales of Unregistered Securities

Not applicable.

Use of Proceeds from our IPO

On July 1, 2019, we closed our IPO, in which we issued and sold 17,250,000 shares of our common stock, including the full exercise of the underwriters' over-allotment option, at a public offering price of $20.00 per share for an aggregate offering price of $345.0 million. Goldman Sachs & Co. LLC, J.P. Morgan Securities LLC and BofA Securities, Inc. acted as joint lead book-running managers for the offering. Cowen and Company, LLC and Guggenheim Securities, LLC acted as book-running managers for the offering. William Blair & Company, L.L.C. and BTIG, LLC acted as co-managers for the offering. All of the shares of common stock issued and sold in the offering were registered under the Securities Act of 1933, as amended pursuant to a registration statement on Form S-1 (File No. 333-231838), which was declared effective by the SEC on June 26, 2019. Following the sale of these shares, the offering terminated.

Net proceeds to us were $315.9 million after deducting aggregate underwriting discounts and commissions of $24.1 million and offering expenses of $5.0 million. Cash used since the IPO as described elsewhere in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this report represents the proceeds used during the three months ended September 30, 2019. No payments were made by us to directors, officers or persons owning 10% or more of any class of our equity securities or to any of our affiliates. There has been no material change in the planned use of proceeds from our IPO as described in our Prospectus.

Item 3. Defaults Upon Senior Securities

Not applicable.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

Not applicable.

Item 6. Exhibits

Exhibit Number	Exhibit Title	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Amended and Restated Articles of Incorporation	8-K	001-38957	3.1	7/1/2019	
3.2	Amended and Restated Bylaws	8-K	001-38957	3.2	7/1/2019	
4.1	Seventh Amended and Restated Investors' Rights Agreement among the Registrant and certain of its shareholders, dated May 30, 2019	S-1	333-231838	4.1	5/30/2019	
10.1	Sixth Amendment to Lease Agreement between Adaptive Biotechnologies Corporation and ARE-Seattle No. 11, LLC, dated August 2, 2019	8-K	001-38957	10.1	8/7/2019	
10.2	Lease Agreement between Adaptive Biotechnologies Corporation and ARE-Seattle No. 12, LLC, dated August 2, 2019	8-K	001-38957	10.2	8/7/2019	
10.3†	IVD Test Kit Development and Supply Agreement between Illumina, Inc. and Adaptive Biotechnologies Corporation, effective September 23, 2019					X
31.1	Certification of Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial and Accounting Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1*	Certification of Principal Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
32.2*	Certification of Principal Financial and Accounting Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.INS	XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.					X
101.SCH	Inline XBRL Taxonomy Extension Schema Document					X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document					X
104	Cover Page Interactive Data File (formatted in Inline XBRL and included in Exhibit 101)					X

† Portions of this exhibit have been omitted pursuant to Item 601 of Regulation S-K promulgated under the Securities Act because the information is not material and would be competitively harmful if publicly disclosed.

* This certification is deemed not filed for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

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.

Adaptive Biotechnologies Corporation

Date: November 12, 2019

By: ***/s/ Chad Robins***

Chad Robins
Chief Executive Officer and Director (Principal Executive Officer)

Date: November 12, 2019

By: ***/s/ Chad Cohen***

Chad Cohen
Chief Financial Officer (Principal Financial and Accounting Officer)

Certain information has been excluded from this exhibit because it (i) is not material and (ii) would be competitively harmful if publicly disclosed.

IVD TEST KIT DEVELOPMENT AND SUPPLY AGREEMENT

This IVD Test Kit Development and Supply Agreement (the "**Agreement**") is effective as of the date of last signature below (the "**Effective Date**") and is made by and between Illumina, Inc., a Delaware corporation ("**Illumina**") and Adaptive Biotechnologies Corp., a Washington corporation ("**Partner**"). Illumina and Partner may be referred to each individually as a "**Party**" and collectively as the "**Parties**."

Recitals

WHEREAS, Partner desires to develop and commercialize in vitro diagnostic test kits under two brand names for use on an Illumina sequencing instrument. Such test kits would: (a) include nucleic acid sample preparation, library preparation, and off-instrument software components developed by Partner; and (b) utilize nucleic acid sequencing consumable components and on-instrument software provided by Illumina.

WHEREAS, under this Agreement, Illumina will develop and supply certain instruments, custom software, and components for the development, commercialization and use of such test kits, and provide Partner certain regulatory and related support for such test kits;

NOW, THEREFORE, for and in consideration of the premises and the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

Article I.
Definitions

In addition to those terms defined elsewhere, the following capitalized terms have the respective meanings set forth below:

"**Affiliate**" means, with respect to any Person, any other Person that, directly or indirectly, through one or more intermediaries Controls, is Controlled by, or is under common Control with, such first Person for so long as such other Person Controls, is Controlled by, or is under common Control with such first Person. For purposes of this definition, "**Control**" means the possession, direct or indirect, of the power to direct or cause the direction of the management of a Person, whether through ownership interests, by contract, or otherwise. Without limiting the generality of the foregoing, a Person will be deemed to Control any other Person in which it owns, directly or indirectly, more than 50% of the outstanding shares, stock, securities or other ownership interests of such Person.

"**Change in Control**" means the occurrence of any of the following, directly or indirectly, in one transaction or in a series of transactions: (a) any direct or indirect acquisition of Partner (or any Affiliate of Partner that Controls Partner) by means of merger, consolidation, purchase, exchange or contribution of securities, or other means; (b) any other consolidation or merger of Partner (or any Affiliate of Partner that Controls Partner) with or into any other Person; (c) the sale, transfer, assignment, or other disposition of securities of Partner (or any Affiliate of Partner that Controls Partner) representing a majority of the voting power of Partner's outstanding voting securities or a majority of the voting power of the outstanding voting securities of any Affiliate of Partner that Controls Partner; (d) any other transaction(s) in which the holders of the outstanding securities of Partner immediately before such transaction do not, immediately after such transaction(s), retain Control of Partner, or any other transaction(s) in which the holders of the outstanding securities of any Affiliate that Controls Partner immediately before such transaction do not, immediately after such transaction(s), retain Control of such Affiliate; or (e) the direct or indirect sale, transfer, assignment, or other disposition of all or substantially all of the business or assets of Partner to which this Agreement relates.

"**clonoSEQ IVD Test Kit**" means an IVD Test Kit for assessment and monitoring of minimal residual disease in connection with treatment or management of patients with lymphoid malignancies, which is currently expected to be marketed under Partner's clonoSEQ® brand (but may be marketed under an alternative brand as specified in the Development Plan).

"**Commercially Reasonable Efforts**" means, with respect to the efforts to be expended by a Party in performing its obligations specified in this Agreement, the reasonable, diligent, good faith efforts to accomplish such obligations as such Party would normally use to accomplish similar obligations under similar circumstances within the life sciences industry. [***] "**Commercially Reasonable**" has an equivalent meaning.

"**Confidential Information**" means all information and know-how and any tangible embodiments thereof provided or disclosed by the Disclosing Party to the Receiving Party in the course of performing this Agreement, including: research data, manufacturing processes and techniques, scientific, manufacturing, and business plans, and information relating to present or future products, sales, suppliers, customers, or employees; provided that all disclosures of Confidential Information in written or tangible form must be identified or marked as "Confidential" (or using similar language), and all disclosures of Confidential Information in oral or visual form must be identified as such at the time of disclosure and confirmed in writing by the Disclosing Party within [***] calendar days of such disclosure (email acceptable).

"**Customer**" means an end-user purchaser of an IVD Test Kit.

"**Development Plan**" means the written development plan describing the activities of each Party necessary to develop and commercialize each IVD Test Kit in accordance with this Agreement. Each Development Plan will include at least: (a) the configuration of the subject IVD Test Kit, and the Illumina Components and IVD Hardware utilized in the subject IVD System; (b) the plans and timelines for the development and optimization of the IVD Test Kit and IVD System, including the type, amount, and any applicable pricing of Illumina Components, IVD Hardware and Custom Software required for such development and optimization, including expected delivery dates therefor; (c) the requirements for development of the Custom Software for Partner; (d) the intended use statement for the IVD Test Kit; (e) a description of the development steps, testing, validation, studies and regulatory path planned by Partner necessary in order to pursue Regulatory Approval and commercialize the IVD Test Kit (including analytical or pre-clinical studies, stability studies, and clinical studies); (f) a description of any development steps, testing, validation, studies and regulatory path planned by Illumina necessary for any expansion of claims concerning the IVD Hardware or Illumina Components and associated costs (if any) to be paid by Partner in connection with such work; and (f) directional (non-binding) pricing for IVD Hardware and Illumina Components, applicable to Customers. Upon execution by the Parties in an amendment to this Agreement pursuant to Section 10.10, each Development Plan will be incorporated into this Agreement in Exhibit B. Each reference to the Development Plan in this Agreement refers to the applicable Development Plan relating to the subject IVD Test Kit.

"**Distributor**" means a Third Party distributor or reseller authorized by Partner to purchase IVD Kits from Partner or its Affiliate and re-sell those IVD Kits to Customers.

"**Documentation**" means, to the extent necessary to obtain each Regulatory Approval as may be required for the intended use of the IVD Test Kit and IVD System in the Territory pursuant to this Agreement as set forth in the Development Plan: (a) applications, registrations, licenses, authorizations and Regulatory Approvals concerning the applicable Illumina Components and IVD Hardware as necessary; (b) correspondence and reports submitted to or received from Regulatory Authorities (including minutes and official contact reports relating to any communications with any Regulatory Authority), including all adverse event files and complaint files that relate specifically to the applicable Illumina Components and IVD Hardware; and (c) analytical, clinical, manufacturing and controls, and other data relied upon and submitted in support of any of the foregoing with respect to the applicable Illumina Components and IVD Hardware.

"**Expansion Field**" means genetic testing of human samples using the immunoSEQ Dx Test Kit for any field outside of the Initial Field that is expressly agreed to by the Parties in a Development Plan or amendment to this Agreement (in each case pursuant to Section 10.10) ; provided however, that the Expansion Field includes only analytical claims and excludes the use of the IVD Test Kit as a companion diagnostic.

"**Field**" means the Initial Field and any Expansion Fields.

"**Force Majeure** " means any cause beyond such Party's reasonable control, including acts of God, fire, flood, tornado, earthquake, hurricane, lightning, any action taken by government or a regulatory authority, actual or threatened acts of war, terrorism, civil disturbance or insurrection, sabotage, labor shortages or disputes, failure or delay in delivery by Illumina's suppliers or subcontractors that is beyond Illumina's ability to cure, or interruption or failure of any utility service.

"**Illumina Components**" means those components set forth on Exhibit A which Illumina or its Affiliate will supply to Partner and its Customers for use in an IVD System pursuant to a Development Plan. Illumina Components may include new versions to the extent provided in accordance with Section 4.02.

"**Initial Field**" means: (a) with respect to the clonoSEQ IVD Test Kit, genetic testing of DNA libraries from human genomic DNA extracted from peripheral whole blood, formalin-fixed paraffin-embedded tissue, or bone marrow for the assessment and monitoring of minimal residual disease in connection with treatment or management of patients with lymphoid malignancies; and (b) with respect to the immunoSEQ Dx IVD Test Kit, genetic testing of DNA libraries from human genomic DNA extracted from peripheral whole blood, formalin-fixed paraffin-embedded tissue, or bone marrow for the assessment and monitoring of solid tumors and T-cell lymphomas; provided however, that in each case the Initial Field includes only analytical claims and excludes the use of an IVD Test Kit as a companion diagnostic.

"**Intellectual Property Right(s)**" means all rights in patent, copyrights, know-how, trademark, service mark and trade dress rights and other industrial or intellectual property rights under the Laws of any jurisdiction, whether registered or not and including all applications or rights to apply therefor and registrations with respect thereto.

"**IVD Hardware**" means Illumina's NextSeq 550Dx sequencing instrument.

"**IVD System**" means a complete in vitro diagnostic system consisting of: (a) IVD Hardware; (b) Illumina Components; (c) the Custom Software (as defined in Section 2.01(c)); and (d) an IVD Test Kit. Each IVD System will be described in more detail in the applicable Development Plan.

"**IVD Test Kit**" means a kitted assay developed by Partner for in vitro diagnostic use with IVD Hardware, Illumina Components, and Custom Software in an IVD System in the Territory in the Initial Field and any Expansion Fields, which may consist generally of nucleic acid sample preparation reagents, sample QC, library preparation reagents, and off-instrument analysis and interpretation software that will accept IVD Hardware standard output files. Each IVD Test Kit will be described in more detail in the applicable Development Plan.

"**immunoSEQ Dx IVD Test Kit**" means an IVD Test Kit for the assessment and monitoring of solid tumors and T-cell lymphomas in the Initial Field and potentially other uses in any Expansion Field, which is currently expected to be marketed under Partner's immunoSEQ Dx brand (but may be marketed under an alternative brand as specified in the Development Plan).

"**Law**" means: (a) all statutes, regulations, ordinances, directives, standards or legislation to which a Party is subject and that are binding on the Party as a matter of law; (b) common law and the law of equity as applicable to a Party; (c) court orders, judgments or decrees that are binding a Party; (d) industry codes of practice, policies, or standards in each case to the extent enforceable against a Party by a governmental authority or Regulatory Authority as law; and (e) applicable policies, rules, or orders made or given by a governmental authority or Regulatory Authority that are binding on a Party as a matter of law.

"**Net Sales**" means the gross amount invoiced for the arm's length sale, transfer or other disposition of the IVD Test Kit in the Territory to a Customer or Distributor by Partner or its Affiliate, less the following items to the extent actually paid, taken, or incurred with respect to such sale, transfer, or other disposition, all in accordance with GAAP (except as otherwise provided below):

(i) Credits and allowances for returns (actual, or estimated to the extent Partner estimates such returns for purposes of its financial reporting in accordance with GAAP), rejections, recalls, or billing corrections;

(ii) separately itemized freight, postage, shipping and insurance, handling and other transportation costs, as well as actual, reasonable, Customer training or other product implementation expenditures, provided that such items are passed on to the purchaser at cost or reasonable estimation of actual cost;

(iii) separately itemized sales, use, value added, medical device excise, and other similar taxes (excluding income taxes), tariffs, customs duties, surcharges and other governmental charges levied on the production, sale, transportation, delivery or use of the IVD Test Kit or Custom Software in the Territory that are incurred at time of sale or are directly related to the sale, are actually paid and are included in the gross amount invoiced; and

(iv) any quantity, cash or other trade discounts, rebates, credit card fees paid, or charge backs.

No deductions may be made for sales commissions or collection costs. Partner's transfer of an IVD Test Kit or to an Affiliate (unless such transfer is to an Affiliate end-user) will not be included in Net Sales. For the avoidance of doubt, the gross amount invoiced by Affiliates to Customers for sale, transfer or other disposition of an IVD Test Kit (including access to Custom Software) in the Territory is included in Net Sales. If an IVD Test Kit is sold, transferred, or otherwise disposed of or provided to a third party, in a manner that is not an arm's-length transaction (including without limitation, transactions with related parties, transactions made under duress or threat of litigation, transactions made for no consideration, and transactions made pursuant to a collaboration, joint venture, or similar relationship), or for non-monetary consideration, then Net Sales for such transaction will equal the average Net Sales from the arm's length sale of such IVD Test Kit in the applicable country during the same Period; *provided however,* that discounts on IVD Test Kits provided for [***] shall only be treated as generating Net Sales in the amount of the discounted price actually paid, subject to permissible deductions. Any IVD Test Kits provided for [***] will be considered sales not at arm's length for purposes of determining Net Sales.

If there is not sufficient information available to determine average Net Sales for the above calculations, Illumina and Partner will negotiate in good faith an appropriate Net Sales value, taking into consideration the fair market value of such IVD Test Kit and the Net Sales from similar IVD Test Kits in similar countries.

"**Person**" means an individual or firm, trust, corporation, partnership, joint venture (whether entity-based or by contract), limited liability company, association, unincorporated organization, or other legal or governmental entity.

"**Regulatory Approval**" means all approvals, licenses, consents, authorizations, clearances and CE marking (including self-certification when applicable) from applicable Regulatory Authorities required to commercialize the IVD Test Kit, IVD System, Custom Software, Illumina Components, or IVD Hardware (as the context requires) in a given jurisdiction.

"**Regulatory Authority**" means any national, supranational, regional, state or local regulatory agency, administration, department, bureau, commission, council or other governmental entity including the FDA, the EMA, the PMDA, and any notified body or other equivalent entity, involved in the granting or receipt of approvals, licenses, consents, authorizations, clearances, and CE marking (including self-certification when applicable) for in vitro diagnostic devices.

"**Territory**" means the United States and any other jurisdictions specified in the Development Plan for the applicable IVD Test Kit. For clarity, the Parties will consider in good faith, but will not be obliged, to expand the Territory outside of the United States.

Article II.
Development and Commercialization of the IVD Test Kits

2.01 Development of the IVD Test Kits. This agreement concerns IVD Test Kits for development and commercialization in the Initial Field and any Expansion Fields in the Territory by Partner for use with Illumina Components on IVD Hardware running Custom Software to be developed and provided by Illumina. These activities will be undertaken as follows, with additional details to be provided in each applicable Development Plan:

(a) Subject to the terms and conditions of this Agreement, the Parties will use Commercially Reasonable Efforts to develop and obtain Regulatory Approval as necessary for each IVD Test Kit in the Initial Field and any agreed Expansion Fields in the Territory in accordance with the Development Plan;

(b) Illumina will develop and transfer to Partner a custom test execution software module for use on the IVD Hardware with each IVD Test Kit, pursuant to the Development Plan (the "**Custom Software**");

(c) Illumina will, subject to Section 2.05, use Commercially Reasonable Efforts to seek, obtain, and maintain any necessary Regulatory Approvals for the IVD Hardware and Illumina Components, in each case to the extent required under applicable Law to enable Partner to develop and commercialize each IVD Test Kit in the Territory, in accordance with the Development Plan and this Agreement;

(d) Partner will use Commercially Reasonable Efforts to seek, obtain, and maintain Regulatory Approvals for each IVD Test Kit and the Custom Software in the Territory, in accordance with the Development Plan and this Agreement;

(e) Illumina will, subject to Section 2.05, provide to Partner reasonable support in connection with Partner seeking, obtaining and maintaining Regulatory Approvals for each IVD Test Kit and Custom Software in the Territory, in accordance with the Development Plan; and

(f) Partner will purchase, and Illumina will sell to Partner, the IVD Hardware and Illumina Components as necessary for performance of each Development Plan pursuant to Section 2.02 below.

For clarity, Partner may sell IVD Test Kits in the Territory in the Initial Field and any Expansion Field, with the latter to be identified by an amendment to this Agreement made pursuant to Section 10.10. If additional Custom Software or modification of existing Custom Software is required to support IVD Test Kits in an Expansion Field, Partner will pay Illumina for the development of such Custom Software in accord with Exhibit D. If, in connection with any Expansion Field, Illumina agrees to pursue additional Regulatory Approvals for IVD Hardware or Illumina Components pursuant to Section 2.05, the Parties will in good faith negotiate terms for Illumina to pursue any such additional Regulatory Approvals and the costs to be paid by Partner to Illumina in connection with the pursuit of those Regulatory Approvals.

A Development Plan may only be amended or added by written agreement pursuant to Section 10.10. For clarity, neither Party is under any obligation to enter into any amendment to this Agreement.

For clarity, except to the extent expressly provided in this Agreement, in the Development Plan, or in a separate agreement entered into by the Parties, Partner will be solely responsible for: (i) developing and testing each IVD Test Kit (including analytical or pre-clinical studies, validation studies, stability studies, and clinical studies directly related thereto); (ii) preparing and submitting regulatory filings and obtaining Regulatory Approvals for each IVD Test Kit (and related Custom Software); and (iii) marketing, selling, supporting, supplying and otherwise commercializing each IVD Test Kit (and related Custom Software).

Further for clarity, except to the extent expressly provided in this Agreement, in the Development Plan, or in a separate agreement entered into by the Parties, Illumina will be solely responsible for: (i) developing and testing all IVD Hardware and Illumina Components as needed to support IVD Test Kits in the Territory in the Field pursuant to the terms and conditions of this Agreement (including any required studies directly related thereto); (ii) preparing and submitting regulatory filings and obtaining Regulatory Approvals for IVD Hardware and Illumina Components as may be required to permit their marketing and use with IVD Test Kits in the Territory in the Initial Field and any agreed upon Expansion Field pursuant to the terms and conditions of this Agreement; and (iii) marketing, selling, supporting, supplying and otherwise commercializing IVD Hardware and Illumina Components in the Territory pursuant to the terms and conditions of this Agreement.

2.02 Supply and Purchase of IVD Hardware and Illumina Components.

(a) All IVD Hardware and Illumina Components purchased by Partner for development and testing of IVD Test Kits under this Agreement will be purchased at the prices set forth in Exhibit A (which prices, for clarity, only apply with respect to products to be used under and in accordance with this Agreement)and the terms of purchases made pursuant to this Agreement will be governed by Illumina's standard terms and conditions of sale applicable to such product, as such standard terms and conditions may be updated from time to time pursuant to Illumina's prevailing practices (the "**Standard Terms**"). The Standard Terms as of the Effective Date are attached as Exhibit C.

(b) Notwithstanding anything to the contrary in the Standard Terms, to the extent any provision of the Standard Terms conflicts with a provision in this Agreement, the provision in this Agreement will control. To the extent any provision of the Standard Terms would prevent Partner's exercise of the rights expressly granted to Partner in this Agreement, or to the extent any provision of the Standard Terms would allow Partner to act in a manner prohibited by this Agreement, such provision will not apply to Partner or this Agreement. In interpreting the Standard Terms, Partner's use of a product in any manner not permitted by this Agreement will be deemed a use of the product not in accordance with the Standard Terms and a breach of the Standard Terms. This Agreement, including the Standard Terms as incorporated herein, exclusively governs Partner's ordering, purchase, and use of Illumina Components and IVD Hardware in connection with the IVD Test Kits, and overrides any conflicting, amending, or additional terms or conditions contained in any purchase orders or similar documents, all of which are hereby rejected and are null and void. Illumina's failure to object to any such terms or conditions will not constitute a waiver by Illumina, nor constitute acceptance by Illumina of such terms or conditions.

2.03 Joint Steering Committee and Alliance Managers.

(a) Within [***] after the Effective Date, the Parties will establish a joint steering committee (the "**JSC**"), which will serve as a forum for the Parties to oversee the development and commercialization of the IVD Test Kits under this Agreement.

(b) Each Party will also appoint an Alliance Manager who will be responsible for the day-to-day coordination of the Party's activities under a Development Plan and whose responsibilities may be further defined thereby.

(c) The JSC will consist of [***] representatives from each Party, including the Alliance Managers, each with the requisite experience and expertise to enable such person to carry out his or her responsibilities as a member of the JSC. Each Party may substitute one or more of its representatives to the JSC by written notice to the other Party. Prior to Regulatory Approval of the first IVD Test Kit in the United States or the European Union, the JSC will meet at least quarterly, or as otherwise agreed to by the Parties. After such Regulatory Approval of the first IVD Test Kit, the JSC will meet at least bi-annually or as otherwise agreed to by the Parties. The location of such meetings will alternate between locations designated by Illumina and locations designated by Partner. Attendance at such meetings may be in person or by telephone. For the avoidance of doubt, the JSC may not modify a Development Plan unless the Parties execute an amendment to this Agreement to reflect such modification.

2.04 Milestone Payments; Development Fees; Excess Hours. Partner will pay the [***] milestone payments to Illumina set forth in Exhibit D upon achievement of the milestones set forth therein. Partner will notify Illumina in writing within [***] business days of its satisfaction of each milestone in Exhibit D and will make the specified payments no later than [***] calendar days after such notice. For additional work specified in a Development Plan to be performed at an hourly rate, Illumina will invoice Partner for all such hours at the rate set forth in Exhibit D (unless otherwise agreed by the Parties), and Partner will pay such invoiced amounts within [***] days of receiving each invoice.

2.05 Regulatory Matters.

(a) The Parties will in good faith consider any guidance and feedback obtained from Regulatory Authorities in response to either Party's attempts to obtain Regulatory Approval, including that obtained during pre-submission meetings (or foreign equivalent), and will work together, in a Commercially Reasonable manner, to negotiate a corresponding amendment to the Development Plan (*e.g.*, timelines, scope, or limits to support) or other provisions of this Agreement in a mutually acceptable manner.

(b) Except as set forth in (d) below, Illumina will not be required under this Agreement to obtain any new (as of the Effective Date) Regulatory Approvals (or otherwise expand or modify any existing Regulatory Approvals) for Illumina Components or IVD Hardware unless expressly specified in a Development Plan. The Parties will in good faith negotiate terms for Illumina to pursue any such additional Regulatory Approvals and the costs to be paid by Partner to Illumina in connection with the pursuit of those Regulatory Approvals.

(c) Illumina will not be required under this Agreement to provide any regulatory support for: (i) site-specific regulatory submissions before the U.S. FDA (or any similar submissions before any similar foreign Regulatory Authority); (ii) expansions of indications or uses of an IVD Test Kit in fields other than the Initial Field and any agreed Expansion Field (including technical changes and/or multiple kit versions to facilitate such claims); or (iii) except as set forth in (d) below, expansions of uses of an IVD Test Kit for any sample type for which Illumina has not previously received regulatory clearance or approval for the corresponding Illumina Components and IVD Hardware, all unless otherwise agreed pursuant to Section 2.05(b).

(d) Partner acknowledges that as of the Effective Date the IVD Hardware has received Regulatory Approval from the FDA in the United States for use with the following sample types: DNA libraries from human genomic DNA extracted from peripheral whole blood or formalin-fixed paraffin-embedded tissue. The Initial Field includes those sample types as well as DNA libraries from human genomic DNA extracted from bone marrow. Partner will use Commercially Reasonable Efforts to include sample type claims directed at DNA libraries from human genomic DNA extracted from bone marrow in pursuing Regulatory Approval for the IVD Kits from the FDA in the United States. If, despite those efforts, the FDA indicates it is necessary for Illumina to update the Regulatory Approval for the IVD Hardware to include sample type claims directed at DNA libraries from human genomic DNA extracted from bone marrow in order for Partner to receive Regulatory Approval for the IVD Test Kit in the Initial Field, Illumina will [***] use Commercially Reasonable Efforts to do so.

2.06 Compliance. In performing under this Agreement and developing and commercializing the IVD Test Kits, Partner will at all times comply with the Illumina Regulatory and Safety Compliance Rider, attached to this Agreement as Exhibit E. Specifically, and without limiting the foregoing, Partner will not market, sell, or otherwise commercialize an IVD Test Kit in any jurisdiction where such activities are prohibited by Law, or in any manner prohibited by Law.

2.07 Regulatory Correspondence. If reasonably related to IVD Hardware, Illumina Components or Custom Software, Partner will promptly (within [***] business days of receipt) provide Illumina with copies of any and all correspondence received from any Regulatory Authority pertaining to obtaining or maintaining Regulatory Approval for an IVD Test Kit or Custom Software.

Article III.
Commercialization of IVD Test Kits

3.01 Commercialization and Support. Partner will use Commercially Reasonable Efforts to: (a) manufacture, and commercialize each IVD Test Kit and distribute the Custom Software for use with each IVD Test Kit in the Territory; *provided however,* that it is understood that commercial adoption of the IVD Test Kit will be determined by Customers who may use (in addition to or in lieu of) other in vitro diagnostic test kits, including ones which may be commercialized by Partner (such commercialization in no way being restricted by this Agreement); (b) provide product support and technical support for each IVD Test Kit and Custom Software in accord with its standard warranty and customer service practices; and (c) refer to Illumina all support inquiries which Partner has reasonably determined to be caused by, or directed to, the IVD Hardware or Illumina Components. Illumina will use Commercially Reasonable Efforts to manufacture and commercialize the IVD Hardware and Illumina Components to Customers in the Territory during the Change Period as well as to provide product support and technical support for the IVD Hardware and Illumina Components, including providing telephone support to Partner and its Customers, in accordance with its standard warranty and customer service practices. Partner will advise Customers to purchase the IVD Hardware and Illumina Components from Illumina. Subject to the terms and conditions of this Agreement, Partner may use Distributors to sell IVD Test Kits in the Territory in the ordinary course of business and will be responsible and liable for all activities of such Distributors in selling IVD Test Kits. Any act and omission of a Distributor that would constitute a breach of this Agreement if performed (or not performed) by

Partner will constitute a breach of this Agreement by Partner. Partner will not perform genetic testing services commercially using IVD Test Kits.

3.02 Reagent Rental Program. If Partner wishes to implement a reagent rental program associated with an IVD System and Illumina agrees, the Parties may negotiate a separate agreement in good faith, and Partner will purchase the IVD Hardware for such program from Illumina and lease such IVD Hardware to its Customers; provided, however, Partner must retain title to the IVD Hardware and may not resell or otherwise transfer any of the IVD Hardware. [***]

3.03 Custom Software.

(a) Illumina will develop and verify each Custom Software module pursuant to the Development Plan and in accordance with the specifications agreed-upon in the Development Plan. The Parties will test the Custom Software as set forth in the Development Plan. Partner will be responsible for validating the performance of the Custom Software relative to the IVD Test Kit.

(b) As between the Parties, Illumina will retain ownership of the Custom Software. Upon completion and verification of the Custom Software by Illumina pursuant to the Development Plan, Illumina will deliver to Partner an executable version of the Custom Software wrapped in an installer package, including instructions for installation. Subject to the terms and conditions of this Agreement, Illumina hereby grants to Partner the non-transferable, exclusive (to the extent provided below) right during the Term to: (i) duplicate and distribute such installer package, solely in executable object code, to its Customers in the Territory; and (ii) install, or permit the installation, of the Custom Software on its own and Customers' IVD Hardware in the Territory by running such installer package. Any purported sublicense, transfer, grant, or other conveyance of the rights granted in this Section 3.03(b) (or any portion of such rights) is prohibited and will be null, void, and of no effect; provided, however, that Partner may sublicense the foregoing rights to its Distributors. The exclusivity of the preceding grant applies only to the specific executable object code iteration of Custom Software delivered to Partner, and not to any underlying code or components thereof, and means only that Illumina will not distribute the specific iteration of Custom Software delivered to Partner directly to Customers in executable object code. Partner acknowledges that Illumina and its Affiliates develop and commercialize similar software for themselves and for third parties using the same or similar underlying source code as may be used in developing the Custom Software, and agrees that nothing in this Agreement is intended to in any way prohibit or limit such activities. Notwithstanding the exclusivity of the preceding grant, and anything to the contrary, Illumina and its Affiliates will not in any way be prohibited from, or limited in, using, copying, creating derivative works of, distributing, sub-licensing, or otherwise exploiting in any way any source code underlying the Custom Software for any purpose.

(c) Partner will not receive the source code for the Custom Software. Partner may not, directly or indirectly, on its own behalf or by assisting or enabling any third party: (i) modify, adapt, improve, translate, reverse engineer, decompile, disassemble, or create derivative works of the Custom Software; (ii) attempt to defeat, avoid, by-pass, remove, deactivate, or otherwise circumvent any software protection mechanisms in the Custom Software, including without limitation, any such mechanism used to restrict or control the functionality of the Software, or (iii) attempt to derive the source code or the underlying ideas, algorithms, structure, or organization form of the Custom Software.

(d) Partner is solely responsible for distributing and otherwise commercializing the Custom Software. Without limiting the generality of the foregoing, Partner is solely responsible for: (i) providing the Custom Software to its Customers, by distributing the installer package or installing the Custom Software as set forth in (b) above; and (ii) except to the limited extent expressly set forth in (e) below, supporting the Custom Software and its own and Customers' use of the Custom Software. For clarity, Partner may only install, or allow its Customers to install, the Custom Software on the IVD Hardware for which it was designed, and for use with the IVD Test Kit for which it was designed, as specified in the Development Plan.

(e) In relation only to its performance with the IVD Test Kit, Partner will test, validate, and accept the Custom Software pursuant to the Development Plan. In connection with such testing and validation, Illumina will provide Partner with a software requirement document, software verification protocol, and verification test report. Partner may submit these documents in seeking Regulatory Approval for the IVD Test Kit and Custom Software. Following Partner's acceptance of the Custom Software pursuant to the Development Plan:

(i) if Illumina identifies any malfunction in the Custom Software that interferes with the functionality of the Custom Software and other similar custom software modules developed for Illumina's other in vitro diagnostic development partners for use with the IVD Hardware, or produces other fixes, enhancements, modifications or improvements to the Custom Software, Illumina will notify Partner and will remedy such malfunction, and deliver to Partner a new version of the Custom Software (for distribution to its Customers pursuant to this Section 3.03) within a Commercially Reasonable period of time; and

(ii) if Partner desires that Illumina provide any fixes, enhancements, modifications, or improvements to the Custom Software not addressed by Section 3.03(e)(i), the Parties will negotiate in good faith the terms under which Illumina may perform such work.

(f) For clarity, Illumina will not be required to provide any enhancements, modifications, fixes, or improvements to the Custom Software except to the limited extent set forth in Section 3.03(e)(i) above or as the Parties may otherwise agree pursuant to Sections 3.03(e)(ii) above.

(g) Partner may not charge for the Custom Software separately from the amount charged for the entire IVD Test Kit.

3.04 Forecasting.

(a) **Purchases by Partner**. Partner will, on a quarterly basis on or before the first day of each calendar quarter, provide Illumina with a forecast representing Partner's good faith estimate of the type and amount of IVD Hardware and Illumina Consumables that Partner expects to purchase for use in developing and testing IVD Test Kits [***] ("**Forecast**"). Each Forecast thereafter will be accompanied by a Purchase Order for all IVD Hardware and Illumina Consumables not already covered by previous Purchase Orders. Partner may only provide one Forecast per quarter; if Partner provides more than one Forecast in any given calendar quarter, Illumina may, in its discretion, reject all but the first Forecast.

(b) **Purchases by Customers**. Beginning at least [***] before the first expected Regulatory Approval of an IVD Test Kit, each Forecast will also include a non-binding Forecast representing Partner's good faith estimate of the type and amount of IVD Test Kits that Partner expects its Customers to purchase in the aggregate during the following [***], on a month-by-month basis.

(c) **Supply by Illumina.** Illumina will use Commercially Reasonable Efforts to supply Illumina Components to Partner in accord with all Forecasts and to make IVD Hardware available for purchase by Customers in the Territory during the Change Period.

Article IV.
Quality

4.01 Quality Audits. During the Term of this Agreement, Illumina agrees to allow Partner (at Partner's sole expense) to audit Illumina's operations that pertain to Illumina Components or the IVD Hardware, upon [***] days' prior written notice, during normal business hours, no more often than [***] per calendar year only to the extent necessary to satisfy Partner's obligations under applicable Law. Such notice will list the names, titles, and affiliations of every Partner representative that Partner wishes to attend the audit. Illumina may in its reasonable discretion deny access to any person on such list (by providing Partner with reasonable prior notice) and may deny access to any person not included on such list. The locations, times, dates, scope, and goals for such audits must be reasonably agreed upon in writing by the Parties prior to commencement of the audit. Partner will comply with all of Illumina's reasonable directions when conducting any audit. All information learned by Partner in the course of such audit is Illumina Confidential Information. If requested by Illumina, Partner will ensure that any person conducting the audit sign Illumina's confidentiality agreement prior to conducting such audit; provided that the terms thereof are substantially similar to the confidentiality obligations in this Agreement. Partner will issue, in writing, to Illumina all findings of any such audit within [***] days of the audit.

4.02 Product Changes.

(a) As used in this Article IV, the period of time commencing on the Effective Date and ending [***] years thereafter is referred to as the "**Change Period**." Partner acknowledges that Illumina is constantly innovating and developing new products and new versions of products. Illumina acknowledges that voluntary changes to IVD Hardware and/or Illumina Components and/or Custom Software may incur costs and risks for both Parties and will only be considered during the Change Period with a Commercially Reasonable rationale and justification. With respect to IVD Hardware, Illumina does not intend to make material changes during the Change Period. Illumina will provide notice to Partner if a change to IVD Hardware during the Change Period requires implementation at Customer sites as a field upgrade. With regard to Illumina Components, Illumina will provide Partner with written notice of any material voluntary changes to form, fit, or function during the Change Period at least [***] prior to making such change, in order to allow Partner to plan accordingly. As used in this paragraph and in (b) below, a material change is a change that Illumina reasonably expects to require Partner to make a filing or submission to any Regulatory Authority in connection with obtaining or maintaining Regulatory Approval for the IVD Test Kit.

(b) Illumina reserves the right to make changes to IVD Hardware, Illumina Components and Custom Software due to safety, applicable Law, regulatory requirements, or failure to conform to specifications, and may be required to make changes caused by Force Majeure. Illumina will notify Partner in writing of any such material changes during the Change Period and will exert Commercially Reasonable Efforts to do so as promptly as practicably possible. Following such notice, and upon Partner's reasonable request, Illumina will discuss with Partner the steps necessary to migrate to successor instruments, modified Illumina Components or modified Custom Software, if any, and use Commercially Reasonable Efforts to assist (as applicable) Partner and its Customers with such transition in accordance with this Agreement.

(c) Other than the changes described in (a) and (b) above, Illumina will continue to sell and provide support for the IVD Hardware and Illumina Components in the original form used for development and regulatory submission on the terms set forth herein throughout the Change Period. Notwithstanding anything to the contrary, Illumina makes no guarantee, and is not required to ensure, that the IVD Hardware or Illumina Components will be manufactured or sold following the Change Period. Unless expressly stated otherwise in this Agreement, including as set forth in (a) and (b) above, Illumina is under no obligation to notify Partner of any changes to existing products or development of new products. Prior to expiration of the Change Period, upon Partner's request the Parties will in good faith discuss the terms of a potential transition of the affected IVD Test Kit(s) for use with newer IVD Hardware and/or Illumina Components and/or Custom Software.

Article V.
Revenue Share; Records and Accounting

5.01 Revenue Share. In consideration of the right to commercialize the IVD Test Kits for use with IVD Hardware, Illumina Components and Custom Software, and other activities and consideration of Illumina contemplated by this Agreement, Partner will pay Illumina a revenue share determined pursuant to the following schedule (such amount referred to as the "**Revenue Share**"):

[***]% of aggregate Net Sales of IVD Test Kits [***]

[***]% of aggregate Net Sales of IVD Test Kits [***]

[***]% of aggregate Net Sales of IVD Test Kits [***]

5.02 Reporting. Partner will furnish to Illumina a written report within [***] after the close of each calendar quarter (March 31, June 30, September 30 and December 31) (each, a "**Period**") showing on a product-by-product and country-by-country basis: (a) the number of IVD Test Kits sold, transferred, or otherwise disposed of, and the number of IVD Test Kits used by Partner and its Affiliates in performing genetic testing services (if any); (b) the gross amount invoiced during the Period for IVD Test Kits; (c) a detailed explanation of any IVD Test Kits sold, transferred, or otherwise disposed of during the Period in any transaction that was not at arm's length; (d) a reasonably detailed calculation of Net Sales during the Period; (e) the official exchange rates used in determining the Revenue Share (which exchange rates must be those quoted by a reputable source, such as the Wall Street Journal, oanda.com, the Financial Times, or a recognized money center bank

such as JP Morgan, Bank of America, or an equivalent); and (f) the amount of Revenue Share payable to Illumina. Payment of the Revenue Share earned during a Period will accompany such report.

5.03 **Payments.** Other than payment for Illumina Components and IVD Hardware purchased by Partner, which will be governed by the Standard Terms, all payments required under this Agreement from Partner will be paid in the United States Dollars by wire or ACH transfer pursuant to the following instructions or such other wire or ACH transfer instructions as Illumina may reasonably designate. Partner may not deduct or withhold any wire transfer fees, bank charges, or any other fees or charges incurred in connection with making such payment.

Account Name:	[***]
Bank Name:	[***]
Bank Address:	[***]
ABA:	[***]
Routing:	[***]
Swift:	[***]
Account:	[***]
BIC:	[***]

5.04 **Records.** Partner will maintain written records with respect to its operations for such period pursuant to this Agreement in sufficient detail to enable Illumina or its designated accountants to confirm compliance with the terms of this Agreement and the accuracy and completeness of the amounts of Revenue Share and any other payments payable to Illumina, and further agrees to permit said records to be audited from time to time, on reasonable prior notice during normal business hours, to the extent necessary to confirm compliance with the terms of this Agreement and verify the accuracy and completeness of the amounts of Revenue Share and other payments due hereunder; provided Illumina will not be entitled to perform more than one audit in any calendar year. [***] Illumina will invoice Partner for any amount due resulting from such an audit, and Partner will pay such invoice within [***] of Partner's receipt of such invoice.

5.05 **Taxes**. If applicable Law requires any amount to be withheld against any amount owed by Partner to Illumina under this Agreement (each, a "**Withholding**"), Partner will withhold such taxes from the amount due and shall timely furnish Illumina with proof of payment of such taxes. If applicable Law requires Illumina to pay such Withholding, and will not permit Partner to pay such Withholding, the Parties will in good faith negotiate a payment mechanism that results in Illumina receiving and retaining the full amounts to which it is entitled net of the Withholding. Each Party will provide the other if the paying Party, full and complete documentation as is reasonably required for each type of payment due for which an exemption from, or a reduction in, any withholding taxes is claimed.

Article VI.
Intellectual Property

6.01 **Rights Granted to Partner**.

(a) Subject to, and contingent upon compliance with, the terms and conditions of this Agreement and any applicable Standard Terms, Partner's purchase of Illumina Components and IVD Hardware from Illumina and its Affiliates under this Agreement confers upon Partner the limited, non-exclusive, non-transferable, right under the Illumina Intellectual Property Rights to use purchased Illumina Components and IVD Hardware to develop the applicable IVD Test Kit during the Term and solely for use in the Territory in the Initial and any Expansion Fields with the IVD Hardware and Illumina Components, strictly in accordance with the Development Plan for such IVD Test Kit. For clarity, the rights granted in this Section 6.01: (i) expressly exclude any and all rights to, and Partner and its Affiliates may not, make, have made, sell, have sold, offer for sale, and/or have offered for sale Illumina Components; and (ii) are in addition to the rights granted in the Standard Terms.

(b) Subject to, and contingent upon compliance with, the terms and conditions of this Agreement, Illumina hereby grants to Partner the right to reference the device listing for the IVD Hardware in support of seeking Regulatory Approval for the IVD Test Kits and Custom Software during the Term in the Territory. To the extent

required by the FDA (or similar Regulatory Authority in a Territory designated in the applicable Development Plan) Illumina will prepare and submit a letter of authorization documenting such right.

(c) Any purported transfer, grant, or other conveyance of the rights granted in this Section 6.01 (or any portion of such rights) will be null, void, and of no effect. The Parties agree that this Section 6.01 is intended to, and does, alter the effect of the exhaustion of patent rights that could otherwise result if the sale of Illumina Components and IVD Hardware was made without restriction.

6.02 Rights Granted to Illumina.

(a) Subject to, and contingent upon compliance with, the terms and conditions of this Agreement, Partner hereby grants to Illumina and its Affiliates a limited, nonexclusive, non-transferable, non-sublicensable license under such Intellectual Property Rights of Partner as may be necessary for Illumina to perform its obligations and exercise its rights under this Agreement.

(b) Any purported transfer, grant, or other conveyance of the rights granted in this Section 6.02 (or any portion of such rights) will be null, void, and of no effect.

6.03 Improvements. Partner hereby grants to Illumina and its Affiliates a nonexclusive, irrevocable, transferable, sublicensable, perpetual, worldwide, royalty-free, fully paid-up license under any and all Intellectual Property Rights generated by or on behalf of Partner under this Agreement that claim or are otherwise directed to: (a) any IVD Hardware, Illumina Component, or Custom Software; (b) any use of any IVD Hardware, Illumina Component, or Custom Software; or (c) any improvement, enhancement, alteration, or modification of any IVD Hardware, Illumina Component, or Custom Software or use of any IVD Hardware, Illumina Component, or Custom Software, in each case to develop, make, have made, use, sell, offer for sale, have sold, import, and otherwise commercialize and exploit products and services embodying such Intellectual Property Rights or which would, but for this license, infringe upon such Intellectual Property Rights .

Article VII.
Indemnification; Limitation of Liability; Insurance

7.01 Partner Indemnification. Partner will defend, indemnify and hold harmless Illumina, its Affiliates, and their respective officers, directors, representatives, employees, successors and assigns ("**Illumina Indemnitee(s)**"), from and against any and all claims, causes of action, and proceedings brought or asserted by a third party ("**Claims**"), and all associated losses, liabilities, damages, fines, and penalties of any and every kind, including legal expenses and reasonable attorneys' fees ("**Losses**") to the extent resulting from or arising out of Partner's or a Partner Indemnitee's: (a) development, use, or commercialization of the IVD Test Kits or Custom Software; (b) breach of this Agreement, including any representation, warranty or failure to exert good faith or Commercially Reasonable Efforts as required; (c) gross negligence or intentional misconduct in performing or failing to perform under this Agreement; or (d) sale (including making, using, selling, offering for sale, and importing) by or on behalf of Partner of an IVD Test Kit in the Territory that infringes the Intellectual Property Rights of a third party; in each case except to the extent resulting from or arising out of Illumina's or an Illumina Indemnitee's gross negligence, intentional misconduct, or breach of this Agreement.

7.02 Illumina Indemnification. Illumina will defend, indemnify and hold harmless Partner, its Affiliates, and their respective officers, directors, representatives, employees, successors and assigns ("**Partner Indemnitee(s)**"), from and against any and all Claims and Losses to the extent resulting from or arising out of Illumina's or an Illumina Indemnitee's: (a) breach of this Agreement, including any representation, warranty or failure to exert good faith or Commercially Reasonable Efforts as required; or (b) gross negligence or intentional misconduct in performing or failing to perform under this Agreement; in each case except to the extent resulting from or arising out of Partner's or an Partner Indemnitee's gross negligence, intentional misconduct, or breach of this Agreement.

7.03 Indemnity Procedure. The indemnifying Party's obligations under this Article VII are conditioned on the Party seeking indemnification: (a) giving the indemnifying Party prompt written notice of the Claim; provided, however, that failure to provide such notice will not relieve the indemnifying Party from its liability or obligations under this

Article VII, except to the extent of any material prejudice as a direct result of such failure; (b) reasonably cooperating with the indemnifying Party, at the indemnifying Party's expense, in connection with the defense and settlement of the Claim, including providing accurate and complete information requested by the indemnifying Party; and (c) permitting the indemnifying Party to solely control the defense and settlement of the Claim; provided, however, that the indemnifying Party may not settle the Claim, enter into or otherwise consent to an adverse judgment or order, or make any admission as to liability or fault that would adversely affect the indemnified Party, without the indemnified Party's prior written consent, which will not be unreasonably withheld or delayed. Further, the indemnified Party will have the right to participate (but not control) and be represented in any suit or action by counsel of its selection at its own cost.

7.04 Product-related Indemnification. Additionally, each Party will defend, indemnify, and hold harmless the other Party (and any other indemnitees expressly provided in the Standard Terms) for Claims and Losses relating to the purchase, manufacture, and use of IVD Hardware and Illumina Components purchased by Partner from Illumina under this Agreement if and to the extent, and subject to all terms and conditions, provided in the Standard Terms. For clarity, Illumina's defense, indemnification, and hold harmless obligations with respect to the Illumina Components and IVD Hardware, and Partner's and its Customers' purchase and use of such products, are limited solely to those obligations expressly provided in the Standard Terms for such products.

7.05 Limited Liability.

(a) EXCEPT AS STATED IN (C) BELOW, AND EXCEPT WITH RESPECT TO LIABILITY ARISING FROM: (I) A PARTY'S DEFENSE AND INDEMNIFICATION OBLIGATIONS UNDER ARTICLE VII, BUT ONLY WITH RESPECT TO DAMAGES ACTUALLY PAID OR TO BE PAID BY THE INDEMNIFIED PARTY TO THE THIRD PARTY CLAIMANT; BUT OTHERWISE TO THE FULLEST EXTENT PERMITTED BY LAW, IN NO EVENT WILL EITHER PARTY BE LIABLE FOR COSTS OF PROCUREMENT OF SUBSTITUTE PRODUCTS OR SERVICES, LOST PROFITS, LOSS OF DATA OR BUSINESS, OR FOR ANY INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY, CONSEQUENTIAL, OR PUNITIVE DAMAGES OF ANY KIND ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT, HOWEVER ARISING OR CAUSED AND ON ANY THEORY OF LIABILITY (WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, MISREPRESENTATION, BREACH OF STATUTORY DUTY, OR OTHERWISE). FOR CLARITY, DAMAGES INCURRED AS A RESULT OF EITHER PARTY'S BREACH OF SECTION 3.01 ARE NOT SUBJECT TO THIS SECTION 7.05.

(b) EXCEPT AS STATED IN (C) BELOW, AND EXCEPT TO THE EXTENT ARISING FROM: (I) PARTNER'S BINDING COMMITMENT TO PURCHASE PRODUCT PURSUANT TO ONE OR MORE ISSUED AND ACCEPTED PURCHASE ORDERS; (II) PARTNER'S REVENUE SHARE OBLIGATIONS; OR (III) A PARTY'S DEFENSE AND INDEMNIFICATION OBLIGATIONS UNDER ARTICLE VII; BUT OTHERWISE TO THE FULLEST EXTENT PERMITTED BY LAW, EACH PARTY'S CUMULATIVE LIABILITY UNDER OR ARISING OUT OF THIS AGREEMENT, INCLUDING ANY CAUSE OF ACTION IN CONTRACT, NEGLIGENCE, OR TORT (INCLUDING STRICT LIABILITY), WILL NOT EXCEED [***].

(c) THE LIMITATIONS OF LIABILITY IN THIS SECTION 7.05 APPLY EVEN IF A PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LIABILITY, AND NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY. NOTWITHSTANDING (A) AND (B) ABOVE AND ANYTHING TO THE CONTRARY, THIS AGREEMENT DOES NOT LIMIT LIABILITY OF EITHER PARTY FOR ANY INFRINGEMENT OF THE OTHER PARTY'S INTELLECTUAL PROPERTY RIGHTS.

7.06 Insurance. Each Party will obtain and maintain insurance coverage as follows: (a) a policy for liability (including professional and errors and omissions) in the amount of no less than [***] per occurrence; and (b) separately a policy for commercial general liability and public liability insurance in the amount of no less than [***], in the case of each of (a) and (b) to protect the Illumina Indemnitees under the indemnification provided hereunder. Each Party will maintain such insurance at all times during the Term and if any such insurance is "Claims Made" insurance, for a period of [***] years thereafter.

Article VIII.
Term and Termination

8.01 Term. The term of this Agreement will begin on the Effective Date and continue for 6 years unless terminated earlier in accordance with this Article VIII or extended by amendment pursuant to Section 10.10 (the "**Term**").

8.02 Early Termination. Without limiting any other rights of termination expressly provided in this Agreement or under Law, this Agreement may be terminated early as follows:

(a) **Breach of Provision.** If a Party materially breaches this Agreement and fails to cure such breach within [***] days after receiving written notice of the breach from the other Party, then the non-breaching Party may terminate this Agreement with immediate effect by providing written notice of termination to the other Party. Notwithstanding the foregoing, and without limiting any other right or remedy of Illumina, the breach by either Party of any term in Article VI under this Agreement gives the other Party the right to seek injunctive relief, damages and/or terminate this Agreement with immediate effect upon written notice.

(b) **Bankruptcy and Insolvency.** A Party may terminate this Agreement, effective immediately upon written notice, if the other Party becomes the subject of a voluntary or involuntary petition in bankruptcy, for winding up of that Party, or any proceeding relating to insolvency, receivership, administrative receivership, administration liquidation or Partner voluntary arrangement or scheme of arrangement with its creditors that is not dismissed or set aside within [***] days.

(c) **Termination for Change in Control.** Partner will promptly (in any event within [***] business days) notify Illumina in writing if it undergoes any Change in Control. If any Change in Control occurs while any Development Plan is active (i.e. prior to Regulatory Approval of the IVD Test Kit being developed by Partner under the Development Plan) and results in Partner being Controlled by, or under common Control with, or this Agreement being assigned or otherwise transferred to, any Person that manufactures or sells, or has publicly announced its intention to manufacture or sell, nucleic acid sequencing instruments or any Affiliate of such a Person (each an "**Instrument Supplier**"), Illumina may, within 30 days after receipt of such notice (or other notice of such transaction(s) if Partner fails to provide such notice), elect to terminate the active Development Plan(s), and if no Development Plans have been completed this entire Agreement, by providing [***] days' prior written notice to Partner or its successor in interest.

(d) **Development Plans.** If the Parties are unable to reach agreement upon and enter into the first Development Plan within [***] of the Effective Date, or if at any time after the second anniversary of the Effective Date there are no active Development Plans in place, either Party may terminate this Agreement upon written notice to the other Party.

8.03 Right to Cease Delivery. In addition to any other remedies available to Illumina under this Agreement or at Law, Illumina reserves the right to suspend shipping Illumina Components to Partner and its Customers immediately on the actual occurrence of any of the following: (a) Partner uses, or directly induces its Customers to use, the Illumina Components outside the Field; (b) Partner fails to pay invoices or Revenue Share when due, subject to any applicable cure periods; (c) Partner materially breaches any representation, warranty, or covenant made hereunder; or (d) if any governmental authority prohibits Illumina from manufacturing or supplying the Illumina Components, or prohibits the sale of a IVD Test Kit or IVD System. In each case Illumina will resume shipping Illumina Components to Partner and its Customers if Illumina receives reasonable assurances that the situation giving rise to such suspension has been remedied or is otherwise not applicable.

8.04 Survival of Obligations. Termination or expiration of this Agreement will not relieve the Parties of any liability or obligation which accrued hereunder prior to the effective date of such termination or expiration nor preclude either Party from pursuing all rights and remedies it may have hereunder or at Law or in equity with respect to any breach of this Agreement, nor prejudice either Party's right to obtain performance of any obligation. The following provisions will survive termination or expiration of this Agreement: Article I, Sections 2.06 and 2.07, Article V, Sections 6.02 and 6.03, Article VII, Sections 8.04 and 8.05, Article IX, and Article X.

8.05 No Damages for Termination or Expiration. THIS AGREEMENT NEITHER GUARANTEES SUPPLY OR PURCHASE BY EITHER PARTY. NEITHER PARTY WILL BE LIABLE TO THE OTHER PARTY FOR DAMAGES OF ANY KIND (INCLUDING WITHOUT LIMITATION DAMAGES ON ACCOUNT OF PRESENT OR PROSPECTIVE PROFITS, OR ON ACCOUNT OF EXPENDITURES, INVESTMENTS, OR COMMITMENTS MADE IN

CONNECTION WITH THIS AGREEMENT, OR IN CONNECTION WITH THE DEVELOPMENT OR MAINTENANCE OF THE BUSINESS OR GOODWILL OF THE OTHER PARTY) BY REASON OF EXPIRATION OF THIS AGREEMENT OR PROPER EXERCISE OF ITS RIGHT TO TERMINATE THIS AGREEMENT IN ACCORDANCE WITH THE TERMS AND CONDITIONS SET FORTH IN THIS AGREEMENT, AND EACH PARTY EXPRESSLY WAIVES ANY RIGHT IT MAY HAVE TO RECEIVE ANY SUCH DAMAGES.

Article IX.
Protection of Confidential Information

9.01 Confidentiality. The Parties acknowledge that a Party (the "**Receiving Party**") may have access to Confidential Information of the other Party (the "**Disclosing Party**") in connection with this Agreement. During the Term and for a period of [***] years thereafter, the Receiving Party will hold the Disclosing Party's Confidential Information in confidence using at least the degree of care that is used by the Receiving Party with respect to its own Confidential Information, but no less than reasonable care. The Receiving Party may disclose the Confidential Information of the Disclosing Party solely on a need to know basis to its employees, contractors, officers, directors, representatives, and those of its Affiliates, under written confidentiality and restricted use terms or undertakings consistent with this Agreement; provided that the Receiving Party will be liable for all acts and omissions of such Persons that constitute a breach of this Article IX, or that would constitute a breach of this Article IX if performed (or not performed) by the Receiving Party, with respect to such Confidential Information. The Receiving Party may not use the Disclosing Party's Confidential Information for any purpose other than exercising its rights and fulfilling its obligations under this Agreement. The Confidential Information will at all times remain the property of the Disclosing Party. The Receiving Party will, upon written request of the Disclosing Party, return to the Disclosing Party or destroy the Confidential Information of the Disclosing Party. Notwithstanding the foregoing, the Receiving Party may maintain one copy of the Disclosing Party's Confidential Information to be retained by the Receiving Party's Legal Department or other appropriate department for archival purposes only.

9.02 Exceptions. Notwithstanding any provision contained in this Agreement to the contrary, neither Party will be required to maintain in confidence or be restricted in its use of any of the following: (a) information that, at the time of disclosure to the Receiving Party, is in the public domain through no breach of this Agreement or breach of another obligation of confidentiality owed to the Disclosing Party or its Affiliate by the Receiving Party or its Affiliate; (b) information that, after disclosure hereunder, becomes part of the public domain by publication or otherwise, except by breach of this Agreement or breach of another obligation of confidentiality owed to the Disclosing Party or its Affiliate by the Receiving Party or its Affiliate; (c) information that was in the Receiving Party's or its Affiliate's possession at the time of disclosure hereunder by the Disclosing Party unless subject to an obligation of confidentiality or restricted use owed to the Disclosing Party or its Affiliate; (d) information that is independently developed by or for the Receiving Party or its Affiliates without use of or reliance on Confidential Information of the Disclosing Party; or (e) information that the Receiving Party receives from a third party where such third party was under no obligation of confidentiality to the Disclosing Party or its Affiliate with respect to such information.

9.03 Disclosures Required by Law. The Receiving Party may disclose Confidential Information of the Disclosing Party as required by court order, operation of Law, or government regulation (including those of the Securities Exchange Commission), or the rules of any stock exchange; provided that, the Receiving Party: (a) promptly notifies the Disclosing Party of the specifics of such requirement prior to the actual disclosure, or promptly thereafter if prior notice is impractical under the circumstances; (b) uses diligent and reasonable efforts to limit the scope of such disclosure or obtain confidential treatment of the Confidential Information if available; and (c) allows the Disclosing Party to participate in the process undertaken to protect the confidentiality of the Disclosing Party's Confidential Information including cooperating with the Disclosing Party at the Disclosing Party's expense in its efforts to permit the Receiving Party to comply with the requirement in a manner that discloses the least amount necessary, if any, of the Confidential Information of the Disclosing Party.

9.04 Disclosure of Agreement. The terms and existence of this Agreement are each Party's Confidential Information.

Article X.
Miscellaneous

10.01 Notices. All notices required or permitted under this Agreement must be in writing to the following address (or any other address designated by the Party in writing), in English, and will be deemed received only when: (a) delivered personally; (b) three days after having been sent by registered or certified mail, return receipt requested, postage prepaid (or five days for international mail); or (c) one day after deposit with a commercial express courier specifying next day delivery or, for international courier packages, two days after deposit with a commercial express courier specifying two-day delivery, with written verification of receipt.

If to Illumina:	**If to Partner:**
[***]	[***]
With a copy to:	**With a copy to:**
[***]	[***]

10.02 Representations and Warranties. Each Party represents, warrants, and covenants that: (a) it has the right and authority to enter into this Agreement without violating the terms of any other agreement; (b) the person(s) signing this Agreement on its behalf has the right and authority to bind the Party to this Agreement; and (c) neither it nor any of its Affiliates has been debarred or is subject to debarment and neither it nor any of its Affiliates will use in any capacity, in connection with performance of its obligations hereunder, any Person who has been debarred pursuant to Section 306 of the United States Federal Food, Drug, and Cosmetic Act or who is the subject of a conviction described in such section.

FOR CLARITY AND NOTWITHSTANDING ANYTHING TO THE CONTRARY: (I) ILLUMINA'S SOLE REPRESENTATIONS, WARRANTIES, AND INDEMNIFICATION AND DEFENSE OBLIGATIONS WITH RESPECT TO PRODUCTS PURCHASED BY PARTNER AND ITS CUSTOMERS ARE CONTAINED EXCLUSIVELY IN THE APPLICABLE STANDARD TERMS; AND (II) EACH PARTY'S SOLE REPRESENTATIONS, WARRANTIES, AND INDEMNIFICATION AND DEFENSE OBLIGATIONS WITH RESPECT TO THIS AGREEMENT AND PRODUCTS TO BE DEVELOPED AND COMMERCIALIZED IN CONNECTION THEREWITH ARE LIMITED TO THOSE EXPRESSLY SET FORTH IN THIS AGREEMENT. ALL OTHER EXPRESS OR IMPLIED WARRANTIES (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OF THIRD PARTY RIGHTS AND FITNESS FOR A PARTICULAR PURPOSE) ARE EXPLICITLY DISCLAIMED.

10.03 Non-Exclusive Relationship. Each Party acknowledges and agrees that, during the Term and thereafter, nothing in this Agreement will create any form of exclusive relationship between the Parties with respect to the subject matter of this Agreement, or prevent either Party from: (a) entering into competing business relationships with one or more third parties for the research, development and/or commercialization of any other product or service that might compete with any of the other Party's products, including an IVD Test Kit or IVD System in any respect and/or (b) conducting research, development and/or commercialization with respect to any product in any manner whatsoever outside the scope of this Agreement, including products that might compete with any of the other Party's products, including an IVD Test Kit or IVD System; provided that, for clarity, in either case neither Party may use the other Party's Confidential Information and/or Intellectual Property Right in such activities.

10.04 Legal Compliance. Nothing in this Agreement is intended, or should be interpreted, to prevent either Party from complying with, or to require a Party to violate, any applicable Law. Should either Party reasonably conclude that any portion of this Agreement is or may be in violation of a change in a Law made after the Effective Date, or if any such change or proposed change would materially alter the amount or method of compensating Illumina for services performed for, or Revenue Share owed by, Partner the Parties agree to negotiate in good faith written modifications to this Agreement as may be necessary to establish compliance with such changes, and to reflect applicable changes in compensation warranted by such legal changes, with any mutually agreed upon modifications added to this Agreement by written amendment in accordance with Section 10.10 of this Agreement.

10.05 Independent Parties. The Parties are independent contractors, and the relationship between the Parties does not constitute a partnership, joint venture or agency of any kind. Neither Party has the authority to make any

statements, representations or commitments of any kind, or to take any action, which is binding on the other Party, without the prior written consent of the other Party.

10.06 Governing Law; Jurisdiction; Dispute Resolution. This Agreement and any dispute or claim arising out of or in connection with it or its subject matter or formation will be governed and construed in accordance with the laws of the State of California, U.S.A., without regard to provisions on the conflicts of laws. Each Party irrevocably consents to the jurisdiction of the U.S. District Court for the Northern District of California. The Parties agree that the United Nations Convention on Contracts for the International Sale of goods will not apply to this Agreement.

10.07 Severability. If any provision of this Agreement is held to be invalid or unenforceable in any jurisdiction in which this Agreement is being performed, the remainder of this Agreement will be valid and enforceable and the Parties will negotiate in good faith a substitute, valid and enforceable provision which most nearly effects the Parties' intent in entering into this Agreement.

10.08 No Waiver; Rights and Remedies. The failure or delay of either Party to exercise any right or remedy provided herein or to require any performance of any term of this Agreement may not be construed as a waiver, and no single or partial exercise of any right or remedy provided herein, or the waiver by either Party of any breach of this Agreement will not prevent a subsequent exercise or enforcement of, or be deemed a waiver of any subsequent breach of, the same or any other term of this Agreement. Except as expressly provided in this Agreement, the rights and remedies of each Party under this Agreement are cumulative and not exclusive of any rights or remedies provided by Law.

10.09 Injunctive Relief. Each Party acknowledges that its breach or threatened breach of Article 6 or Article 9 may cause irreparable damage to the other Party. Therefore, in the event of any such breach or threatened breach, the other Party will be entitled, in addition to all other rights and remedies available at Law, to seek injunctive relief against the breach or threatened breach without having to post bond or other security.

10.10 Entire Agreement; Amendment; Waiver. This Agreement, together with the Standard Terms, represents the entire agreement between the Parties regarding the subject matter hereof and supersedes all prior discussions, communications, agreements, and understandings of any kind and nature between the Parties with respect to the development and commercialization of IVD Test Kits. Any agreements between the Parties, whether existing or later made, concerning the development, commercialization or use of other products are not affected or superseded by this Agreement. The Parties acknowledge and agree that by entering into this Agreement, they do not rely on any statement, representation, assurance or warranty of any Person other than as expressly set out in this Agreement. Each Party agrees that it will have no right or remedy (other than for breach of contract) in respect of any statement, representation, assurance or warranty (whether made negligently or innocently) other than as expressly set out in this Agreement. Nothing in this Section 10.10 will exclude or limit liability for fraud. No amendment to this Agreement (including changes to any Development Plan or addition of any Development Plan) will be effective unless in writing and signed by both Parties. No waiver of any right, condition, or breach of this Agreement will be effective unless in writing and signed by the Party who has the right to waive the right, condition or breach and delivered to the other Party.

10.11 Counterparts. This Agreement may be executed in one or more counterparts, each of which will be deemed to be an original, and all of which will constitute one and the same instrument.

10.12 Assignment; Illumina Affiliates; Third Party Beneficiaries. Except in connection with a sale of substantially all of the assets of its clinical in vitro diagnostics business or a Change in Control (in each case subject to Section 8.02(c)), Partner may not assign or transfer this Agreement, without the prior written consent of Illumina, which consent may not be unreasonably withheld, conditioned or delayed. Illumina may assign or transfer this Agreement to one or more of its Affiliates or in connection with a sale of substantially all of the assets of its in vitro diagnostics partnership business or a Change in Control. Illumina invoices and other documentation may come from an Illumina Affiliate, and Partner will honor those just as if they came directly from Illumina. Any assignment or transfer of this Agreement made in contravention of the terms hereof will be null and void. Subject to the foregoing, this Agreement will be binding on and inure to the benefit of the Parties' respective successors and permitted assigns. There are no third party beneficiaries to this Agreement.

10.13 **Further Assurance.** Each Party will execute and deliver such further documents and take such further actions as the other Party may reasonably request to evidence and implement the provisions and intent of this Agreement.

10.14 **Costs.** Each Party will bear its own costs and expenses incurred in connection with the negotiation and execution of this Agreement.

10.15 **Force Majeure.** Neither Party will be in breach of this Agreement nor liable for any failure to perform or delay in the performance of this Agreement attributable in whole or in part to any Force Majeure. In the event of any such delay the delivery date for performance will be deferred for a period equal to the time lost by reason of the delay. Notwithstanding anything in this Agreement to the contrary, Partner's payment obligations are not affected by this provision.

10.16 **Headings and Certain Rules of Construction.** Sections, titles and headings in this Agreement are for convenience only and are not intended to affect the meaning or interpretation hereof. Whenever required by the context, the singular term includes the plural, the plural term includes the singular, and the gender of any pronoun includes all genders. As used in this Agreement except as the context may otherwise require, the words "include," "includes," "including," and "such as" are deemed to be followed by "without limitation" or "but not limited to," whether or not they are in fact followed by such words or words of like import, and "will" and "shall" are used synonymously. Except as expressly stated, any reference to "days" will be to calendar days, and "business day" means all days other than Saturdays, Sundays, or a national or local holiday recognized in the United States, any reference to "calendar month" will be to the month and not a 30 day period, and any reference to "calendar quarter" will mean the first three calendar months of the year, the fourth through sixth calendar months of the year, the seventh through ninth calendar months of the year, and the last three calendar months of the year. Whenever the last day for the exercise of any right or the discharge of any obligation hereunder falls on, or any notice is deemed to be given on, a Saturday, Sunday, or national holiday, the Party having such right or obligation will have until 5:00 pm PST on the next succeeding business day to exercise such right or to discharge such obligation or the Party giving notice will be deemed to have given notice on the next succeeding business day. No usage of trade, course of performance, or other regular practice between the Parties hereto may be used to interpret or alter the terms and conditions of this Agreement. Unless otherwise expressly provided in this Agreement, any agreement, instrument, or statute defined or referred to means such agreement, instrument, or statute as from time to time amended, modified, or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The Parties have participated jointly in the negotiation and drafting of this Agreement. If an ambiguity or question of intent or interpretation arises, this Agreement will be construed as if drafted jointly by the Parties and no presumption or burden of proof will arise favoring or disfavoring any Party because of the authorship of any provision of this Agreement.

[*Signature Page Follows Directly*]

SIGNATURE PAGE TO
IVD TEST KIT DEVELOPMENT AND SUPPLY AGREEMENT

IN WITNESS WHEREOF, effective as of the Effective Date, each of the Parties have executed this Agreement by their duly authorized officers or representatives.

ILLUMINA, INC.	**ADAPTIVE BIOTECHNOLOGIES CORP.**
By:/s/ John Leite	By: /s/ Chad Robins
Name: John Leite	Name: Chad Robins
Title: VP, Business Development	Title: CEO & Co-Founder
Date: September 23, 2019	Date: September 23, 2019

EXHIBIT A

ILLUMINA COMPONENTS, IVD HARDWARE, AND PRICING

[***]

EXHIBIT B

DEVELOPMENT PLANS

[to be added]

EXHIBIT C

STANDARD TERMS

[***]

EXHIBIT D

FEES AND MILESTONE PAYMENTS

Partner will pay to Illumina the following amounts upon achievement of the corresponding milestones:

Technology Access Fee (Milestone):

[***], payable as follows: (a) [***] upon acceptance of a verified Custom Software module by Partner as meeting the specification requirements set forth in the Development Plan for the first IVD Test Kit, and (b) [***] upon installation of the Custom Software module at a clinical trial site.

[***]

EXHIBIT E

ILLUMINA REGULATORY AND SAFETY COMPLIANCE RIDER

[***]

Exhibit 31.1

CERTIFICATION OF THE CHIEF EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Chad Robins, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Adaptive Biotechnologies Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) 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, 2019

By: /s/ Chad Robins
Chad Robins
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF THE CHIEF FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Chad Cohen, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Adaptive Biotechnologies Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) 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, 2019

By: /s/ Chad Cohen
Chad Cohen
Chief Financial Officer
(Principal Financial Officer and
Principal Accounting Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Adaptive Biotechnologies Corporation (the "Company") on Form 10-Q for the quarterly period ended September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: November 12, 2019

By: /s/ Chad Robins
Chad Robins
Chief Executive Officer
(Principal Executive Officer)

The foregoing certification is being furnished solely to accompany the Report pursuant to 18 U.S.C. § 1350, and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Adaptive Biotechnologies Corporation. (the "Company") on Form 10-Q for the quarterly period ended September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: November 12, 2019

By: /s/ Chad Cohen
Chad Cohen
Chief Financial Officer
(Principal Financial Officer and
Principal Accounting Officer)

The foregoing certification is being furnished solely to accompany the Report pursuant to 18 U.S.C. § 1350, and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing.