UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 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 June 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: 001-34207

Dynavax Technologies Corporation

(Exact name of registrant as specified in its charter)

Delaware	**33-0728374**
(State or other jurisdiction of incorporation or organization)	**(IRS Employer Identification No.)**

2100 Powell Street, Suite 900
Emeryville, CA 94608
(510) 848-5100
(Address, including Zip Code, and telephone number, including area code, of the registrant's principal executive offices)

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

Title of each class:	**Trading symbol(s):**	**Name of each exchange on which registered:**
Common Stock, $0.001 par value	DVAX	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 registration 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 Act). Yes ☐ No ☒

As of August 2, 2019, the registrant had outstanding 65,154,729 shares of common stock.

INDEX

DYNAVAX TECHNOLOGIES CORPORATION

FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which are subject to a number of risks and uncertainties. All statements that are not historical facts are forward-looking statements, including statements about our ability to successfully commercialize HEPLISAV-B® and our anticipated market opportunity and level of sales of HEPLISAV-B, our ability to successfully develop and timely obtain regulatory approval of SD-101, DV281 and our other early stage compounds or successfully pursue strategic alternatives for such compounds, our business, collaboration and regulatory strategy, our ability to achieve anticipated cost reductions and whether or not we may incur other material charges not currently contemplated due to events that may occur as a result of, or associated with our restructuring, our intellectual property position, our product development efforts, our ability to manufacture commercial supply and meet regulatory requirements, the timing of the introduction of our products, uncertainty regarding our capital needs and future operating results and profitability, anticipated sources of funds, liquidity and cash needs, as well as our plans, objectives, strategies, expectations and intentions. These statements appear throughout this Quarterly Report on Form 10-Q and can be identified by the use of forward-looking language such as "may," "will," "should," "expect," "plan," "anticipate," "believe," "estimate," "predict," "future," or "intend," or the negative of these terms or other variations or comparable terminology.

Actual results may vary materially from those in our forward-looking statements as a result of various factors that are identified in "Item 1A—Risk Factors" and "Item 2—Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in this document. No assurance can be given that the risk factors described in this Quarterly Report on Form 10-Q are all of the factors that could cause actual results to vary materially from the forward-looking statements. All forward-looking statements speak only as of the date of this Quarterly Report on Form 10-Q. Readers should not place undue reliance on these forward-looking statements and are cautioned that any such forward-looking statements are not guarantees of future performance. We assume no obligation to update any forward-looking statements.

This Quarterly Report on Form 10-Q includes trademarks and registered trademarks of Dynavax Technologies Corporation. Products or service names of other companies mentioned in this Quarterly Report on Form 10-Q may be trademarks or registered trademarks of their respective owners. References herein to "we," "our," "us," "Dynavax" or the "Company" refer to Dynavax Technologies Corporation and, where appropriate, its subsidiary Dynavax GmbH.

ITEM 1. FINANCIAL STATEMENTS

Dynavax Technologies Corporation
Condensed Consolidated Balance Sheets
(In thousands, except per share amounts)

	June 30, 2019 (unaudited)	December 31, 2018 (Note 1)
Assets		
Current assets:		
Cash and cash equivalents	$ 34,225	$ 49,348
Marketable securities available-for-sale	106,269	96,188
Accounts and other receivables, net	7,582	3,704
Inventories, net	36,629	19,022
Prepaid expenses and other current assets	6,745	6,102
Total current assets	191,450	174,364
Property and equipment, net	34,393	17,064
Intangible assets, net	7,147	11,717
Operating lease right-of-use assets	29,533	-
Goodwill	2,131	2,144
Restricted cash	628	619
Other assets	1,799	4,976
Total assets	$ 267,081	$ 210,884
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 11,226	$ 5,278
Accrued research and development	5,501	9,714
Accrued liabilities	19,550	16,041
Other current liabilities	8,296	7,000
Total current liabilities	44,573	38,033
Long-term debt, net	176,636	100,871
Long-term portion of lease liabilities	34,641	-
Other long-term liabilities	643	8,915
Total liabilities	256,493	147,819
Commitments and contingencies (Note 6)		
Stockholders' equity:		
Preferred stock: $0.001 par value; 5,000 shares authorized at June 30, 2019 and December 31, 2018; no shares issued and outstanding at June 30, 2019 and December 31, 2018	-	-
Common stock: $0.001 par value; 139,000 shares authorized at June 30, 2019 and December 31, 2018; 65,155 and 62,862 shares issued and outstanding at June 30, 2019 and December 31, 2018, respectively	65	63
Additional paid-in capital	1,161,115	1,131,241
Accumulated other comprehensive loss	(1,983)	(2,015)
Accumulated deficit	(1,148,609)	(1,066,224)
Total stockholders' equity	10,588	63,065
Total liabilities and stockholders' equity	$ 267,081	$ 210,884

See accompanying notes.

Dynavax Technologies Corporation
Condensed Consolidated Statements of Operations
(In thousands, except per share amounts)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Revenues:				
Product revenue, net	$ 8,301	$ 1,254	$ 13,928	$ 1,419
Collaboration revenue	-	-	146	-
Total revenues	8,301	1,254	14,074	1,419
Operating expenses:				
Cost of sales - product	2,141	5,177	3,941	5,382
Cost of sales - amortization of intangible assets	2,297	2,298	4,570	4,715
Research and development	16,196	16,273	37,402	35,239
Selling, general and administrative	17,861	15,653	36,209	32,544
Restructuring	8,777	-	8,777	-
Total operating expenses	47,272	39,401	90,899	77,880
Loss from operations	(38,971)	(38,147)	(76,825)	(76,461)
Other income (expense):				
Interest income	979	1,153	1,714	1,893
Interest expense	(4,598)	(2,691)	(7,332)	(3,852)
Other (expense) income, net	(123)	241	58	18
Net loss	$ (42,713)	$ (39,444)	$ (82,385)	$ (78,402)
Basic and diluted net loss per share	$ (0.66)	$ (0.63)	$ (1.28)	$ (1.26)
Weighted average shares used to compute basic and diluted net loss per share	65,088	62,346	64,436	62,047

Condensed Consolidated Statements of Comprehensive Loss
(In thousands)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net loss	$ (42,713)	$ (39,444)	$ (82,385)	$ (78,402)
Other comprehensive income (loss), net of tax:				
Unrealized gain (loss) on marketable securities available-for-sale	108	17	176	(5)
Foreign currency translation adjustments	340	(1,314)	(144)	(624)
Total other comprehensive income (loss)	448	(1,297)	32	(629)
Total comprehensive loss	$ (42,265)	$ (40,741)	$ (82,353)	$ (79,031)

See accompanying notes.

Dynavax Technologies Corporation
Condensed Consolidated Statements of Stockholders' Equity
(In thousands)
(Unaudited)

	Common Stock					
Three Months Ended June 30, 2019	**Shares**	**Par Amount**	**Additional Paid-In Capital**	**Accumulated Other Comprehensive (Loss) Income**	**Accumulated Deficit**	**Total Stockholders' Equity**
Balances at March 31, 2019	65,020	$ 65	$ 1,151,421	$ (2,431)	$ (1,105,896)	$ 43,159
Issuance of common stock upon exercise of stock options and restricted stock awards, net	91	-	19	-	-	19
Issuance of common stock, net of issuance costs	44	-	326	-	-	326
Stock compensation expense	-	-	9,349	-	-	9,349
Total other comprehensive income	-	-	-	448	-	448
Net loss	-	-	-	-	(42,713)	(42,713)
Balances at June 30, 2019	65,155	$ 65	$ 1,161,115	$ (1,983)	$ (1,148,609)	$ 10,588
Six Months Ended June 30, 2019						
Balances at December 31, 2018	62,862	$ 63	$ 1,131,241	$ (2,015)	$ (1,066,224)	$ 63,065
Issuance of common stock upon exercise of stock options and restricted stock awards, net	831	-	1	-	-	1
Issuance of common stock under Employee Stock Purchase Plan	75	-	407	-	-	407
Issuance of common stock, net of issuance costs	1,387	2	13,947	-	-	13,949
Stock compensation expense	-	-	15,519	-	-	15,519
Total other comprehensive income	-	-	-	32	-	32
Net loss	-	-	-	-	(82,385)	(82,385)
Balances at June 30, 2019	65,155	$ 65	$ 1,161,115	$ (1,983)	$ (1,148,609)	$ 10,588

	Common Stock					
Three Months Ended June 30, 2018	**Shares**	**Par Amount**	**Additional Paid-In Capital**	**Accumulated Other Comprehensive (Loss) Income**	**Accumulated Deficit**	**Total Stockholders' Equity**
Balances at March 31, 2018	62,254	$ 62	$ 1,112,321	$ (213)	$ (946,283)	$ 165,887
Issuance (withholding) of common stock upon exercise of stock options and restricted stock awards, net	354	1	(124)	-	-	(123)
Stock compensation expense	-	-	6,290	-	-	6,290
Total other comprehensive loss	-	-	-	(1,297)	-	(1,297)
Net loss	-	-	-	-	(39,444)	(39,444)
Balances at June 30, 2018	62,608	$ 63	$ 1,118,487	$ (1,510)	$ (985,727)	$ 131,313
Six Months Ended June 30, 2018						
Balances at December 31, 2017	61,533	$ 62	$ 1,107,693	$ (881)	$ (907,325)	$ 199,549
Issuance (withholding) of common stock upon exercise of stock options and restricted stock awards, net	1,017	1	(550)	-	-	(549)
Issuance of common stock under Employee Stock Purchase Plan	58	-	255	-	-	255
Stock compensation expense	-	-	11,089	-	-	11,089
Total other comprehensive loss	-	-	-	(629)	-	(629)
Net loss	-	-	-	-	(78,402)	(78,402)
Balances at June 30, 2018	62,608	$ 63	$ 1,118,487	$ (1,510)	$ (985,727)	$ 131,313

See accompanying notes.

Dynavax Technologies Corporation
Condensed Consolidated Statements of Cash Flows
(In thousands)
(Unaudited)

	Six Months Ended June 30,	
	2019	**2018**
Operating activities		
Net loss	$ (82,385)	$ (78,402)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	3,196	1,658
Amortization of right-of-use assets	2,046	-
Accretion of discounts on marketable securities	(875)	(681)
Stock compensation expense	15,519	11,089
Cost of sales - amortization of intangible assets	4,570	4,715
Non-cash interest expense	2,135	1,139
Changes in operating assets and liabilities:		
Accounts and other receivables, net	(3,878)	(450)
Inventories, net	(17,607)	(4,800)
Prepaid expenses and other current assets	(643)	(186)
Other assets	3,177	(834)
Accounts payable	2,817	1,623
Lease liabilities	(761)	-
Accrued liabilities and other liabilities	(3,574)	1,330
Net cash used in operating activities	(76,263)	(63,799)
Investing activities		
Acquisition of technology licenses	(7,000)	(9,500)
Purchases of marketable securities	(108,341)	(186,821)
Proceeds from maturities of marketable securities	99,310	165,450
Purchases of property and equipment, net	(11,383)	(1,639)
Net cash used in investing activities	(27,414)	(32,510)
Financing activities		
Proceeds from long-term debt, net	74,250	99,000
Proceeds from issuance of common stock, net	13,949	-
Proceeds (tax withholding) from exercise of stock options and restricted stock awards, net	1	(549)
Proceeds from Employee Stock Purchase Plan	407	255
Net cash provided by financing activities	88,607	98,706
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(44)	(260)
Net (decrease) increase in cash, cash equivalents and restricted cash	(15,114)	2,137
Cash, cash equivalents and restricted cash at beginning of period	49,967	27,213
Cash, cash equivalents and restricted cash at end of period	$ 34,853	$ 29,350
Supplemental disclosure of cash flow information		
Cash paid during the period for interest	$ 5,300	$ 2,713
Tenant improvements provided by the landlord	$ 3,228	$ -
Non-cash investing and financing activities:		
Disposal of fully depreciated property and equipment	$ 981	$ 42
Non-cash acquisition of technology license	$ -	$ 12,773
Purchases of property and equipment, not yet paid	$ 6,920	$ 327
Right-of-use assets obtained in exchange for operating lease liabilities	$ 34,807	$ -

See accompanying notes.

1. Organization and Summary of Significant Accounting Policies

Dynavax Technologies Corporation ("we," "our," "us," "Dynavax" or the "Company"), is a fully-integrated biopharmaceutical company focused on leveraging the power of the body's innate and adaptive immune responses through toll-like receptor ("TLR") stimulation. We discover, develop and commercialize novel vaccines. We launched our first commercial product, HEPLISAV-B® [Hepatitis B Vaccine (Recombinant), Adjuvanted], in February 2018, following United States Food and Drug Administration ("FDA") approval for prevention of infection caused by all known subtypes of hepatitis B virus in adults age 18 years and older. We were incorporated in California in August 1996 under the name Double Helix Corporation, and we changed our name to Dynavax Technologies Corporation in September 1996. We reincorporated in Delaware in 2000.

On May 23, 2019, we implemented a strategic organizational restructuring, to principally align our operations around our vaccine business and significantly curtail further investment in our immuno-oncology business. In connection with the restructuring, we reduced our workforce by approximately 80 positions, or approximately 36%, of U.S.-based personnel. Also in connection with the restructuring, our Chief Executive Officer, also a member of the Board of Directors (the "Board"), submitted notice of his retirement from the Company and the Board, effective August 1, 2019. We expect the restructuring to be substantially complete and the costs incurred and paid by December 31, 2019. We are exploring strategic alternatives for our immuno-oncology business.

Basis of Presentation

Our accompanying unaudited condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP") for interim financial information and pursuant to the instructions to Form 10-Q and Article 10 of Regulation S-X. In our opinion, these unaudited condensed consolidated financial statements include all adjustments, consisting of normal recurring adjustments, which we consider necessary to present fairly our financial position and the results of our operations and cash flows. As permitted under those rules, certain footnotes or other financial information that are normally required by GAAP have been condensed or omitted. Interim-period results are not necessarily indicative of results of operations or cash flows to be expected for a full-year period or any other interim-period. The condensed consolidated balance sheet at December 31, 2018 has been derived from audited financial statements at that date, but excludes disclosures required by GAAP for complete financial statements.

The unaudited condensed consolidated financial statements and these notes should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2018, as filed with the Securities and Exchange Commission (the "SEC").

The unaudited condensed consolidated financial statements include the accounts of Dynavax and our wholly-owned subsidiary, Dynavax GmbH. All significant intercompany accounts and transactions among these entities have been eliminated from the condensed consolidated financial statements. We operate in one business segment: discovery, development and commercialization of novel vaccines.

Liquidity and Financial Condition

As of June 30, 2019, we had cash, cash equivalents and marketable securities of $140.5 million. On March 29, 2019, we borrowed the remaining $75.0 million under our term loan agreement with CRG Servicing LLC. The principal amount of $178.2 million, which includes paid-in-kind interest, borrowed under the loan agreement has a maturity date of December 31, 2023, unless earlier prepaid.

The Company has incurred losses and negative cash flows from operations since its inception and expects to incur operating losses for the foreseeable future as we continue to invest in commercialization of HEPLISAV-B. The Company believes that its cash, cash equivalents and marketable securities of $140.5 million at June 30, 2019 and expected revenues and funds from operations will be sufficient to allow the Company to fund its current operations through the first quarter of 2020.

Until we can generate a sufficient amount of revenue from product sales, we will need to finance our operations through strategic alliance and licensing arrangements and/or future public or private debt and equity financings. Adequate financing may not be available to us on acceptable terms, or at all. In the absence of additional financing, these conditions raise substantial doubt about the Company's ability to continue as a going concern within one year after the date the consolidated financial statements are issued. If adequate funds are not available when needed, we may need to significantly reduce our operations while we seek strategic alternatives, which could have an adverse impact on our ability to achieve our intended business objectives. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Our ability to raise additional capital in the equity and debt markets, should we choose to do so, is dependent on a number of factors, including, but not limited to, the market demand for our common stock, which itself is subject to a number of development and business risks and uncertainties, our creditworthiness and the uncertainty that we would be able to raise such additional capital at a price or on terms that are favorable to us. Raising additional funds through the issuance of equity or debt securities could result in dilution to our existing stockholders, increased fixed payment obligations, or both. In addition, these securities may have rights senior to those of our common stock and could include covenants that would restrict our operations.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make informed estimates and assumptions that affect the amounts reported in the condensed consolidated financial statements and accompanying notes. Management's estimates are based on historical information available as of the date of the condensed consolidated financial statements and various other assumptions we believe are reasonable under the circumstances. Actual results could differ materially from these estimates.

Summary of Significant Accounting Policies

Revenue Recognition

We recognize revenue when the customer obtains control of promised goods or services, in an amount that reflects the consideration which we expect to receive in exchange for those goods or services. To determine revenue recognition for arrangements that we determine are within the scope of Accounting Standards Codification ("ASC") 606, we perform the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer. At contract inception, once the contract is determined to be within the scope of ASC 606, we assess the goods or services promised within each contract and determine those that are performance obligations, and assess whether each promised good or service is distinct. We then recognize as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

Product Revenue, Net

We sell our product to a limited number of wholesalers and specialty distributors in the U.S. (collectively, our "Customers"). Revenues from product sales are recognized when we have satisfied our performance obligation, which is the transfer of control of our product upon delivery to the Customer. The timing between the recognition of revenue for product sales and the receipt of payment is not significant. Because our standard credit terms are short-term and we expect to receive payment in less than one-year, there is no financing component on the related receivables. Taxes collected from Customers relating to product sales and remitted to governmental authorities are excluded from revenues.

Overall, product revenue, net, reflects our best estimates of the amount of consideration to which we are entitled based on the terms of the contract. The amount of variable consideration is included in the net sales price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period. If our estimates differ significantly from actuals, we will record adjustments that would affect product revenue, net in the period of adjustment.

Reserves for Variable Consideration

Revenues from product sales are recorded at the net sales price, which includes estimates of variable consideration such as product returns, chargebacks, discounts, rebates and other fees that are offered within contracts between us and our Customers, healthcare providers, and others relating to our product sales. We estimate variable consideration using either the most likely amount method or the expected value method, depending on the type of variable consideration and what method better predicts the amount of consideration we expect to receive. We take into consideration relevant factors such as industry data, current contractual terms, available information about Customers' inventory, resale and chargeback data and forecasted customer buying and payment patterns, in estimating each variable consideration. The variable consideration is recorded at the time product sales is recognized, resulting in a reduction in product revenue and a reduction in accounts receivable (if the Customer offsets the amount against its accounts receivable) or as an accrued liability (if we pay the amount through our accounts payable process). Variable consideration requires significant estimates, judgment and information obtained from external sources. The amount of variable consideration is included in the net sales price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period. If our estimates differ significantly from actuals, we will record adjustments that would affect product revenue, net in the period of adjustment. If we were to change any of these judgments or estimates, it could cause a material increase or decrease in the amount of revenue that we report in a particular period. There have been no material adjustments to these estimates for the six months ended June 30, 2019.

Product Returns: Consistent with industry practice, we offer our Customers a limited right of return based on the product's expiration date for product that has been purchased from us. We estimate the amount of our product sales that may be returned by our Customers and record this estimate as a reduction of revenue in the period the related product revenue is recognized. We consider several factors in the estimation of potential product returns including expiration dates of the product shipped, the limited product return rights, available information about Customers' inventory, shelf life of the product and other relevant factors.

Chargebacks: Our Customers subsequently resell our product to healthcare providers. In addition to distribution agreements with Customers, we enter into arrangements with healthcare providers that provide for chargebacks and discounts with respect to the purchase of our product. Chargebacks represent the estimated obligations resulting from contractual commitments to sell product to qualified healthcare providers at prices lower than the list prices charged to Customers who directly purchase the product from us. Customers charge us for the difference between what they pay for the product and the ultimate selling price to the qualified healthcare providers. These reserves are established in the same period that the related revenue is recognized, resulting in a reduction of product revenue and accounts receivable. Chargeback amounts are determined at the time of resale to the qualified healthcare provider by Customers, and we issue credits for such amounts generally within a few weeks of the Customer's notification to us of the resale. Reserves for chargebacks consists of credits that we expect to issue for units that remain in the distribution channel inventories at each reporting period end that we expect will be sold to qualified healthcare providers, and chargebacks for units that our Customers have sold to healthcare providers, but for which credits have not been issued.

Trade Discounts and Allowances: We provide our Customers with discounts which include early payment incentives that are explicitly stated in our contracts, and are recorded as a reduction of revenue in the period the related product revenue is recognized.

Distribution Fees: Distribution fees include fees paid to certain Customers for sales order management, data and distribution services. Distribution fees are recorded as a reduction of revenue in the period the related product revenue is recognized.

Collaboration Revenue

We enter into collaborative arrangements with other companies. Such arrangements may include promises to customers which, if capable of being distinct, are accounted for as separate performance obligations. For agreements with multiple performance obligations, we allocate estimated revenue to each performance obligation at contract inception based on the estimated transaction price of each performance obligation. Revenue allocated to each performance obligation is then recognized when we satisfy the performance obligation by transferring control of the promised good or service to the customer.

Leases

On January 1, 2019, we adopted ASC 842, Leases, using the modified retrospective approach. Prior period amounts continue to be reported in accordance with our historic accounting under previous lease guidance, ASC 840, Leases. We elected the package of practical expedients which, among other things, allowed us to carry forward the historical lease classification of leases in place as of January 1, 2019. As a result of adopting ASC 842, we recognized right-of-use asset and lease liabilities for operating leases of $34.8 million and $37.1 million, respectively on January 1, 2019. There was no adjustment to the opening balance of accumulated deficit as a result of the adoption of ASC 842.

We determine if an arrangement includes a lease at inception. Operating leases are included in operating lease right-of-use assets, other current liabilities and long-term portion of lease liabilities in our condensed consolidated balance sheets. Right-of-use assets represent our right to use an underlying asset during the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease right-of-use assets and liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. In determining the net present value of lease payments, we use our incremental borrowing rate which represents an estimated rate of interest that we would have to pay to borrow equivalent funds on a collateralized basis at the lease commencement date.

The operating lease right-of-use assets also include any lease payments made and exclude any lease incentives. Our leases may include options to extend or terminate the lease which are included in the lease term when it is reasonably certain that we will exercise any such options. Lease expense is recognized on a straight-line basis over the expected lease term. We have elected not to apply the recognition requirements of ASC 842 for short-term leases.

Inventories

Inventory is stated at the lower of cost or estimated net realizable value, on a first-in, first-out, or FIFO, basis. We primarily use actual costs to determine our cost basis for inventories. Our assessment of market value requires the use of estimates regarding the net realizable value of our inventory balances, including an assessment of excess or obsolete inventory. We determine excess or obsolete inventory based on multiple factors, including an estimate of the future demand for our products, product expiration dates and current sales levels. Our assumptions of future demand for our products are inherently uncertain and if we were to change any of these judgments or estimates, it could cause a material increase or decrease in the amount of inventory reserves that we report in a particular period. For the six months ended June 30, 2019, there was no inventory reserve recognized.

We consider regulatory approval of product candidates to be uncertain and product manufactured prior to regulatory approval may not be sold unless regulatory approval is obtained. As such, the manufacturing costs for product candidates incurred prior to regulatory approval are not capitalized as inventory but are expensed as research and development costs. We begin capitalization of these inventory related costs once regulatory approval is obtained.

HEPLISAV-B was approved by the FDA on November 9, 2017, at which time we began to capitalize inventory costs associated with HEPLISAV-B. In March 2018, we received regulatory approval of the pre-filled syringe ("PFS") presentation of HEPLISAV-B. Prior to FDA approval of HEPLISAV-B, all costs related to the manufacturing of HEPLISAV-B that could potentially be available to support the commercial launch of our products, were charged to research and development expense in the period incurred as there was no alternative future use. Prior to regulatory approval of PFS, costs associated with resuming operating activities at the Düsseldorf manufacturing facility were also included in research and development expense. Subsequent to regulatory approval of PFS, costs associated with resuming manufacturing activities at the Düsseldorf facility were included in cost of sales – product, until commercial production resumed in mid-2018 at which time these costs were recorded as raw materials inventory.

Research and Development Expenses and Accruals

Research and development expenses include personnel and facility-related expenses, outside contracted services including clinical trial costs, manufacturing and process development costs, research costs and other consulting services and non-cash stock-based compensation. Research and development costs are expensed as incurred. Amounts due under contracts with third parties may be either fixed fee or fee for service, and may include upfront payments, monthly payments and payments upon the completion of milestones or receipt of deliverables. Non-refundable advance payments under agreements are capitalized and expensed as the related goods are delivered or services are performed.

We contract with third parties to perform various clinical trial activities in the on-going development of potential products. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows to our vendors. Payments under the contracts depend on factors such as the achievement of certain events, successful enrollment of patients, and completion of portions of the clinical trial or similar conditions. Our accrual for clinical trials is based on estimates of the services received and efforts expended pursuant to contracts with clinical trial centers and clinical research organizations. We may terminate these contracts upon written notice and we are generally only liable for actual effort expended by the organizations to the date of termination, although in certain instances we may be further responsible for termination fees and penalties. We estimate research and development expenses and the related accrual as of each balance sheet date based on the facts and circumstances known to us at that time. There have been no material adjustments to the prior period accrued estimates for clinical trial activities for the six months ended June 30, 2019.

Restructuring

Restructuring costs are comprised of severance, other termination benefit costs and stock-based compensation expense for stock award and stock option modifications related to workforce reductions. We recognize restructuring charges when the liability is incurred. Employee termination benefits are accrued at the date management has committed to a plan of termination and affected employees have been notified of their termination date and expected severance benefits.

Recent Accounting Pronouncements

Accounting Standards Update 2016-13

In June 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses of Financial Instruments. The standard changes the methodology for measuring credit losses on financial instruments and the timing of when such losses are recorded. In April 2019, the FASB issued targeted clarification to ASU No. 2016-13 within ASU No. 2019-04. In May 2019, the FASB issued targeted transition relief to ASU No. 2016-13 within ASU No. 2019-05. These ASUs are effective for annual periods beginning after December 15, 2019 with early adoption permitted. We are currently evaluating the impact this standard will have on our condensed consolidated financial statements.

Accounting Standards Update 2017-04

In January 2017, the FASB issued ASU No. 2017-04, Intangibles – Goodwill and Other (Topic 350), which simplifies the test for goodwill impairment by eliminating a previous requirement to calculate the implied fair value of goodwill to measure a goodwill impairment charge. The ASU is effective for annual periods beginning after December 15, 2019 with early adoption permitted. The adoption is not expected to have a material impact on our condensed consolidated financial statements.

Accounting Standards Update 2018-13

In August 2018, the FASB issued ASU No. 2018-13, Fair Value Measurement (Topic 820), that eliminates, adds and modifies certain disclosure requirements of fair value measurements. Entities will no longer be required to disclose the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy, but public companies will be required to disclose the range and weighted average used to develop significant unobservable inputs for Level 3 fair value measurements. The ASU is effective for annual periods beginning after December 15, 2019 with early adoption permitted. The adoption of this standard is not expected to have a material impact on our condensed consolidated financial statements.

Accounting Standards Update 2018-15

In August 2018, the FASB issued ASU No. 2018-15, Intangibles – Goodwill and Other –Internal-Use Software (Subtopic 350-40). This ASU requires a customer in a cloud computing arrangement (i.e. hosting arrangement) that is a service contract to follow the internal-use software guidance in ASC 350-40 to determine which implementation costs to capitalize as assets or expense as incurred. ASC 350-40 requires that certain costs incurred during the application development stage be capitalized and other costs incurred during the preliminary project and post-implementation stages be expensed as incurred. The ASU is effective for annual periods beginning after December 15, 2019 with early adoption permitted. The adoption of this standard is not expected to have a material impact on our condensed consolidated financial statements.

2. Fair Value Measurements

We measure fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The accounting standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value which are the following:

- Level 1—Observable inputs, such as quoted prices in active markets for identical assets or liabilities;
- Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities; therefore, requiring an entity to develop its own valuation techniques and assumptions.

Assets and liabilities are classified based on the lowest level of input that is significant to the fair value measurements. We review the fair value hierarchy classification on a quarterly basis. Changes in the ability to observe valuation inputs may result in a reclassification of levels for certain assets or liabilities within the fair value hierarchy.

The carrying amounts of cash equivalents, accounts and other receivables, accounts payable and accrued liabilities are considered reasonable estimates of their respective fair value because of their short-term nature.

As of June 30, 2019, we measured the fair value of our $7.0 million payment to Merck Sharpe & Dohme Corp., which is due in the first quarter of 2020, based on Level 3 inputs due to the use of unobservable inputs that cannot be corroborated by observable market data. We estimated the fair value of the liability using a discounted cash flow technique using the effective interest rate on our term loan. The liability had a fair value of $6.6 million as of June 30, 2019.

Recurring Fair Value Measurements

The following table represents the fair value hierarchy for our financial assets (cash equivalents and marketable securities) measured at fair value on a recurring basis (in thousands):

	Level 1	Level 2	Level 3	Total
June 30, 2019				
Money market funds	$ 29,343	$ -	$ -	$ 29,343
U.S. treasuries	-	1,994	-	1,994
U.S. government agency securities	-	26,903	-	26,903
Corporate debt securities	-	79,870	-	79,870
Total	$ 29,343	$ 108,767	$ -	$ 138,110

	Level 1	Level 2	Level 3	Total
December 31, 2018				
Money market funds	$ 44,002	$ -	$ -	$ 44,002
U.S. treasuries	-	14,724	-	14,724
U.S. government agency securities	-	42,372	-	42,372
Corporate debt securities	-	41,291	-	41,291
Total	$ 44,002	$ 98,387	$ -	$ 142,389

Money market funds are highly liquid investments and are actively traded. The pricing information on these investment instruments is readily available and can be independently validated as of the measurement date. This approach results in the classification of these securities as Level 1 of the fair value hierarchy.

U.S. treasuries, U.S. government agency securities and corporate debt securities are measured at fair value using Level 2 inputs. We review trading activity and pricing for these investments as of each measurement date. When sufficient quoted pricing for identical securities is not available, we use market pricing and other observable market inputs for similar securities obtained from various third party data providers. These inputs represent quoted prices for similar assets in active markets or these inputs have been derived from observable market data. This approach results in the classification of these securities as Level 2 of the fair value hierarchy.

There were no transfers between Level 1 and Level 2 during the six months ended June 30, 2019.

3. Cash, Cash Equivalents, Restricted Cash and Marketable Securities

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

	June 30, 2019	December 31, 2018	June 30, 2018	December 31, 2017
Cash and cash equivalents	$ 34,225	$ 49,348	$ 28,726	$ 26,584
Restricted cash	628	619	624	629
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	$ 34,853	$ 49,967	$ 29,350	$ 27,213

Restricted cash balances relate to certificates of deposit issued as collateral to certain letters of credit issued as security to our facility leases in Berkeley, California and Düsseldorf, Germany. See Note 6.

Cash, cash equivalents and marketable securities consist of the following (in thousands):

	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
June 30, 2019				
Cash and cash equivalents:				
Cash	$ 2,384	$ -	$ -	$ 2,384
Money market funds	29,343	-	-	29,343
U.S. treasuries	500	-	-	500
Corporate debt securities	1,998	-	-	1,998
Total cash and cash equivalents	34,225	-	-	34,225
Marketable securities available-for-sale:				
U.S. treasuries	1,493	1	-	1,494
U.S. government agency securities	26,874	29	-	26,903
Corporate debt securities	77,794	78	-	77,872
Total marketable securities available-for-sale	106,161	108	-	106,269
Total cash, cash equivalents and marketable securities	$ 140,386	$ 108	$ -	$ 140,494
December 31, 2018				
Cash and cash equivalents:				
Cash	$ 3,147	$ -	$ -	$ 3,147
Money market funds	44,002	-	-	44,002
Corporate debt securities	2,199	-	-	2,199
Total cash and cash equivalents	49,348	-	-	49,348
Marketable securities available-for-sale:				
U.S. treasuries	14,732	-	(8)	14,724
U.S. government agency securities	42,416	-	(44)	42,372
Corporate debt securities	39,108	-	(16)	39,092
Total marketable securities available-for-sale	96,256	-	(68)	96,188
Total cash, cash equivalents and marketable securities	$ 145,604	$ -	$ (68)	$ 145,536

The maturities of our marketable securities available-for-sale are as follows (in thousands):

	June 30, 2019	
	Amortized Cost	Estimated Fair Value
Mature in one year or less	$ 106,161	$ 106,269
Mature after one year through two years	-	-
	$ 106,161	$ 106,269

There were no realized gains or losses from the sale of marketable securities during the six months ended June 30, 2019 and 2018.

We have classified our entire investment portfolio as available-for-sale and available for use in current operations and accordingly have classified all investments as short-term. Available-for-sale securities are carried at fair value based on inputs that are observable, either directly or indirectly, such as quoted market prices for similar securities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the securities, with unrealized gains and losses included in accumulated other comprehensive loss in stockholders' equity. Realized gains and losses and declines in value, if any, judged to be other than temporary on available-for-sale securities are included in interest income or expense. The cost of securities sold is based on the specific identification method. Management assesses whether declines in the fair value of investment securities are other than temporary. In determining whether a decline is other than temporary, management considers the following factors:

- whether the investment has been in a continuous realized loss position for over 12 months;
- the duration to maturity of our investments;
- our intention and ability to hold the investment to maturity and if it is not more likely than not that we will be required to sell the investment before recovery of the amortized cost bases;

- the credit rating, financial condition and near-term prospects of the issuer; and
- the type of investments made.

To date, there have been no declines in fair value that have been identified as other than temporary.

4. Inventories, net

The following table presents inventories (in thousands):

	June 30, 2019	December 31, 2018
Raw materials	$ 23,155	$ 12,111
Work-in-process	12,182	6,562
Finished goods	1,292	349
Total	$ 36,629	$ 19,022

5. Intangible Assets, net

Intangible assets are related to certain capitalized milestone and sublicense payments. The following table presents intangible assets (in thousands):

	June 30, 2019	December 31, 2018
Intangible assets	$ 19,773	$ 19,773
Less accumulated amortization	(12,626)	(8,056)
Total	$ 7,147	$ 11,717

We recorded $2.3 million of cost of sales - amortization of intangible assets for each of the three months ended June 30, 2019 and 2018. We recorded $4.6 million and $4.7 million as cost of sales - amortization of intangible assets for the six months ended June 30, 2019 and 2018. See Note 7.

6. Commitments and Contingencies

Leases

As described in Note 1, we adopted ASC 842 as of January 1, 2019. We evaluated our contracts and have determined that, effective upon the adoption of ASC 842, our operating leases included equipment, office/laboratory and manufacturing facility leases.

We lease our facilities in Berkeley, California (“Berkeley Lease”), Emeryville, California and Düsseldorf, Germany.

On September 17, 2018, we entered into an Office/Laboratory Lease (“Lease”) for office and laboratory space located at 5959 Horton Street, Emeryville, California (“Premises”). Under the terms of the Lease, we are leasing 75,662 square feet in the Premises (“Rented Area”) at the rate of $4.75 (“Base Rate”) multiplied by the Rented Area, paid on a monthly basis, starting on April 1, 2019 (“Commencement Date”). The Base Rate is subject to scheduled annual increases, and we are also responsible for certain operating expenses and taxes throughout the life of the Lease. In connection with the Lease, we are entitled to a tenant improvement allowance of up to $8.3 million. The Lease has an initial term of 12 years, following the Commencement Date with an option to extend the lease for two successive five-year terms. The optional periods were not included in the lease term used in determining the right-of-use asset or the lease liability as we did not consider it reasonably certain that we would exercise the options. The operating lease right-of-use assets and liabilities on our June 30, 2019 condensed consolidated balance sheets primarily relate to this Lease.

In connection with our execution of the Lease, on September 17, 2018, we entered into a Lease Termination Agreement to terminate the Berkeley Lease effective as of the date we vacate the Berkeley premises. See Note 14.

Our lease expense comprises of the following (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Operating lease expense	$ 1,747	$ 695	$ 3,485	$ 1,391

Cash paid for amounts included in the measurement of lease liabilities for the six months ended June 30, 2019 was $2.4 million and was included in operating cash flows in our condensed consolidated statement of cash flows.

The balance sheet classification of our operating lease liabilities was as follows (in thousands):

	June 30, 2019	December 31, 2018
Operating lease liabilities:		
Current portion of lease liabilities (included in other current liabilities)	$ 1,663	$ -
Long-term portion of lease liabilities	34,641	-
Total operating lease liabilities	$ 36,304	$ -

At June 30, 2019, the maturities of our operating lease liabilities were as follows (in thousands):

Years ending December 31,	
2019 (remaining)	$ 2,610
2020	5,324
2021	5,220
2022	5,260
2023	4,952
Thereafter	39,523
Total lease payments	62,889
Less:	
Present value adjustment	(26,585)
Total operating lease liabilities	$ 36,304

As of June 30, 2019, the weighted average remaining lease term is 11.1 years and the weighted average discount rate used to determine the operating lease liability was 10.1%.

Commitments

In February 2018, we entered into a $175.0 million term loan agreement. Borrowings under the term loan agreement in the amount of $178.2 million, which includes paid-in-kind interest, are payable at maturity on December 31, 2023, unless earlier prepaid. See Note 8.

In February 2018, we entered into a sublicense agreement with Merck Sharpe & Dohme Corp (“Merck”). Under the agreement, we are required to make a payment of $7.0 million in the first quarter of 2020. See Note 7.

We have entered into material purchase commitments with commercial manufacturers for the supply of HEPLISAV-B. As of June 30, 2019, our non-cancelable purchase commitments totaled $12.5 million.

We rely on and have entered into agreements with research institutions, contract research organizations and clinical investigators. These agreements are terminable by us upon written notice. Generally, we are liable only for actual effort expended by the organizations at any point in time during the contract through the notice period.

Contingencies

From time to time, we may be involved in claims, suits, and proceedings arising from the ordinary course of our business, including actions with respect to intellectual property claims, commercial claims, and other matters. Such claims, suits, and proceedings are inherently uncertain and their results cannot be predicted with certainty. Regardless of the outcome, such legal proceedings can have an adverse impact on us because of legal costs, diversion of management resources, and other factors. In addition, it is possible that a resolution of one or more such proceedings could result in substantial damages, fines, penalties or orders requiring a change in our business practices, which could in the future materially and adversely affect our financial position, results of operations, or cash flows in a particular period.

In conjunction with a financing arrangement with Symphony Dynamo, Inc. and Symphony Dynamo Holdings LLC (“Holdings”) in November 2009, we agreed to make contingent cash payments to Holdings equal to 50% of the first $50 million from any upfront, pre-commercialization milestone or similar payments received by us from any agreement with any third party with respect to the development and/or commercialization of cancer and hepatitis C therapies originally licensed to Symphony Dynamo, Inc., including SD-101. We have made no payments and have not recorded a liability as of June 30, 2019.

7. Collaborative Research, Development and License Agreements

Serum Institute of India Pvt. Ltd.

In June 2017, we entered into an agreement to provide Serum Institute of India Pvt. Ltd. ("SIIPL") with technical support. In consideration, SIIPL agreed to pay us at an agreed-upon hourly rate for services and reimburse certain out-of-pocket expenses. In addition, we have rights to commercialization of certain potential products manufactured at the SIIPL facility. For the six months ended June 30, 2019, we recognized collaboration revenue of $0.1 million. No collaborative revenue was recognized for the comparative prior period.

Merck, Sharp & Dohme Corp.

In February 2018, we entered into a Sublicense Agreement (the "Sublicense Agreement") with Merck. The Sublicense Agreement grants us, under certain non-exclusive U.S. patent rights controlled by Merck which relate to recombinant production of hepatitis B surface antigen, the right to manufacture, use, offer for sale, sell and import HEPLISAV-B in the United States and includes the right to grant further sublicenses. Under the terms of the Sublicense Agreement, we are obligated to pay $21.0 million in three installments. The first and second installment of $7.0 million each was paid in February 2018 and February 2019, respectively and the remaining payment of $7.0 million is due in the first quarter of 2020. The payment in 2020 is classified on the condensed consolidated balance sheets as other current liabilities. At June 30, 2019 and December 31, 2018, the intangible asset, net balance was $7.1 million and $11.7 million, respectively. See Note 5. The Sublicense Agreement continues to be in effect through April 2020, at which time the license becomes perpetual, irrevocable, fully paid-up and royalty free.

8. Long-Term Debt

On February 20, 2018, we entered into a $175.0 million term loan agreement ("Loan Agreement") with CRG Servicing LLC. We initially borrowed $100.0 million (the "Initial Term Loan") under the Loan Agreement at closing and the remaining $75.0 million (the "Second Tranche Term Loan") in March 2019 (collectively, "Term Loans"). Net proceeds from the Initial Term Loan and Second Tranche Term Loan were $99.0 million and $74.3 million, respectively. The Term Loans under the Loan Agreement bear interest at a rate equal to 9.5% per annum. At June 30, 2019, the effective interest rate was 10.2%. At our option, until September 30, 2023, a portion of the interest payments may be paid in kind, and thereby added to the principal. Through June 30, 2019, a portion of our interest was paid in kind, which increased the principal amount of the Term Loans to $178.2 million. The Term Loans have a maturity date of December 31, 2023, unless earlier prepaid. The Term Loans and paid-in-kind interest will be entirely payable at maturity.

The obligations under the Loan Agreement are secured, subject to customary permitted liens and other agreed upon exceptions, by a perfected security interest in (i) all tangible and intangible assets of the Company and any future subsidiary guarantors, except for certain customary excluded property, and (ii) all of the capital stock owned by the Company and such future subsidiary guarantors (limited, in the case of the stock of certain non-U.S. subsidiaries of the Company and certain U.S. subsidiaries substantially all of whose assets consist of equity interests in non-U.S. subsidiaries, to 65% of the capital stock of such subsidiaries, subject to certain exceptions). The obligations under the Loan Agreement will be guaranteed by each of the Company's future direct and indirect subsidiaries (other than certain non-U.S. subsidiaries of the Company and certain U.S. subsidiaries substantially all of whose assets consist of equity interests in non-U.S. subsidiaries, subject to certain exceptions). The Loan Agreement contains customary covenants and requires us to comply with a $15.0 million daily minimum combined cash and investment balance covenant and an annual revenue requirement starting on January 1, 2019 for sales of HEPLISAV-B.

The Term Loans may be prepaid by us at any time. If the Term Loans are prepaid prior to the second anniversary of the initial borrowing date, we are subject to a repayment premium of up to 7.0% of the principal amount prepaid, depending on the date of prepayment.

We recorded $4.5 million and $2.5 million of interest expense related to the Term Loans during the three months ended June 30, 2019 and 2018, respectively. We recorded $7.1 million and $3.6 million of interest expense related to the Term Loans during the six months ended June 30, 2019 and 2018, respectively.

9. Revenue Recognition

All of our product revenue consisted of sales of HEPLISAV-B in the U.S. For the six months ended June 30, 2019 and 2018, our three largest Customers represented approximately 64% and 56% of our product revenue, respectively. The following table summarizes balances and activity in each of the product revenue allowance and reserve categories for the six months ended June 30, 2019 (in thousands):

	Chargebacks, distribution fees, discounts and other fees	Returns	Total
Balance at December 31, 2018	$ 1,736	$ 569	$ 2,305
Provision related to current period sales	6,418	1,071	7,489
Credit or payments made during the period	(4,698)	(217)	(4,915)
Balance at June 30, 2019	$ 3,456	$ 1,423	$ 4,879

Reserves for chargebacks and discounts totaling $2.5 million were recorded as reductions of accounts receivable at June 30, 2019. The remaining reserves balances totaling $2.4 million were recorded as accrued liabilities at June 30, 2019.

10. Net Loss Per Share

Basic net loss per share is calculated by dividing the net loss by the weighted-average number of common shares outstanding during the period. Diluted net loss per share is computed by dividing the net loss by the weighted-average number of common shares outstanding during the period and giving effect to all potentially dilutive common shares using the treasury-stock method. For purposes of this calculation, outstanding options and stock awards are considered to be potentially dilutive common shares and are only included in the calculation of diluted net loss per share when their effect is dilutive.

Stock options and stock awards totaling approximately 10,950,000 and 12,978,000 shares of common stock as of June 30, 2019 and 2018, respectively, were excluded from the calculation of diluted net loss per share for the three and six months ended June 30, 2019 and 2018, because the effect of their inclusion would have been anti-dilutive. For periods in which we have a net loss and no instruments are determined to be dilutive, such as the three and six months ended June 30, 2019 and 2018, basic and diluted net loss per share are the same.

11. Common Stock

Common Stock Outstanding

As of June 30, 2019, there were 65,154,729 shares of our common stock outstanding.

On November 3, 2017, we entered into an At Market Sales Agreement (“2017 ATM Agreement”) with Cowen and Company, LLC (“Cowen”) under which we may offer and sell from time to time at our sole discretion, shares of our common stock having an aggregate offering price up to $150 million through Cowen as our sales agent. We pay Cowen a commission of up to 3% of the gross sales proceeds of any common stock sold through Cowen under the 2017 ATM Agreement. For the six months ended June 30, 2019, we received net cash proceeds of $13.9 million resulting from sales of 1,386,906 shares of our common stock. As of June 30, 2019, we have $118.6 million remaining under the 2017 ATM Agreement.

12. Equity Plans and Stock-Based Compensation

Our 2018 Equity Incentive Plan (the “2018 EIP”) is intended to be the successor to and continuation of the Dynavax Technologies Corporation 2011 Equity Incentive Plan (the “2011 EIP”). The aggregate number of shares of our common stock that may be issued under the 2018 EIP (subject to adjustment for certain changes in capitalization) is comprised of the sum of (i) 5,000,000 newly reserved shares of common stock, (ii) 140,250 unallocated shares of common stock remaining available for grant under the 2011 EIP as of May 31, 2018, and (iii) 7,477,619 shares subject to outstanding stock awards granted under the 2011 EIP and the Dynavax Technologies Corporation 2017 Inducement Award Plan that may become available from time to time as set forth in the 2018 EIP. The 2018 EIP provides for the issuance of up to 12,617,869 shares of our common stock to our employees and directors.

On May 30, 2019, our stockholders approved an amendment to 2018 Equity Incentive Plan (the “Amended 2018 EIP”) to, among other things, increase the aggregate number of shares of common stock authorized for issuance by 2,300,000. Under the Amended 2018 EIP, the aggregate number of shares of our common stock that may be issued to employees and directors (subject to adjustment for certain changes in capitalization) is 14,917,869.

Option activity under our stock-based compensation plans during the six months ended June 30, 2019 was as follows (in thousands except per share amounts):

	Shares Underlying Outstanding Options (in thousands)	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in thousands)
Balance at December 31, 2018	5,750	$ 18.20		
Options granted	2,925	7.04		
Options exercised	(10)	5.75		
Options cancelled:				
Options forfeited (unvested)	(142)	13.98		
Options expired (vested)	(105)	17.55		
Balance at June 30, 2019	8,418	$ 14.42	5.13	$ 199
Vested and expected to vest at June 30, 2019	7,970	$ 14.75	5.07	$ 173
Exercisable at June 30, 2019	3,893	$ 19.14	4.17	$ -

Restricted stock unit activity under our stock-based compensation plans during the six months ended June 30, 2019 was as follows (in thousands except per share amounts):

	Number of Shares (In thousands)	Weighted-Average Grant-Date Fair Value Per Share
Non-vested as of December 31, 2018	1,594	$ 8.82
Granted	1,822	8.80
Vested	(826)	6.79
Forfeited	(59)	11.74
Non-vested as of June 30, 2019	2,531	$ 9.40

The aggregate intrinsic value of the restricted stock units outstanding as of June 30, 2019, based on our stock price on that date was $10.1 million. Fair value of restricted stock units is determined at the date of grant using our closing stock price.

As of June 30, 2019, approximately 151,000 shares underlying stock options and approximately 191,000 restricted stock unit awards with performance-based vesting criteria were outstanding. We recognized stock-based compensation expense for awards with performance-based vesting criteria of $28,000 and $0.3 million for the three and six months ended June 30, 2019, respectively.

Under our stock-based compensation plans, option awards generally vest over a three or four-year period contingent upon continuous service, and expire seven to ten years from the date of grant (or earlier upon termination of continuous service). The fair value-based measurement of each option is estimated on the date of grant using the Black-Scholes option valuation model.

The fair value-based measurements and weighted-average assumptions used in the calculations of these measurements are as follows:

	Stock Options Three Months Ended June 30,		Stock Options Six Months Ended June 30,		Employee Stock Purchase Plan Six Months Ended June 30,	
	2019	2018	2019	2018	2019	2018
Weighted-average fair value per share	$ 4.92	$ 11.37	$ 4.67	$ 11.12	$ 5.19	$ 10.39
Risk-free interest rate	2.3%	2.7%	2.2%	2.6%	2.5%	2.1%
Expected life (in years)	4.5	4.5	4.5	4.5	1.2	1.3
Volatility	0.9	0.9	0.9	0.9	0.8	1.1

The components of stock-based compensation expense were (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Research and development	$ 1,976	$ 2,674	$ 4,156	$ 4,862
Selling, general and administrative	2,470	2,997	5,550	5,585
Restructuring	4,122	-	4,122	-
Cost of sales - product	292	619	630	642
Inventory	489	-	1,061	-
Total	$ 9,349	$ 6,290	$ 15,519	$ 11,089

Compensation expense is based on awards ultimately expected to vest and reflects estimated forfeitures. Stock-based compensation cost for the three and six months ended June 30, 2019 include incremental cost of $4.1 million for accelerated vesting of stock awards and extension of exercise period of stock options for the retirement of our Chief Executive Officer. See Note 13.

As of June 30, 2019, the total unrecognized compensation cost related to non-vested equity awards including all awards with time-based vesting amounted to $35.6 million, which is expected to be recognized over the remaining weighted-average vesting period of 1.9 years. Additionally, as of June 30, 2019, the total unrecognized compensation cost related to equity awards with performance-based vesting criteria amounted to $1.7 million.

Employee Stock Purchase Plan

The Amended and Restated 2014 Employee Stock Purchase Plan (the “Purchase Plan”) provides for the purchase of common stock by eligible employees and became effective on May 28, 2014. On May 31, 2018, our stockholders approved an amendment to the Purchase Plan to increase the aggregate number of shares of common stock authorized for issuance by 600,000 shares. The purchase price per share is the lesser of (i) 85% of the fair market value of the common stock on the commencement of the offer period (generally, the sixteenth day in February or August) or (ii) 85% of the fair market value of the common stock on the exercise date, which is the last day of a purchase period (generally, the fifteenth day in February or August). For the six months ended June 30, 2019, employees have acquired 74,562 shares of our common stock under the Purchase Plan and 498,472 shares of our common stock remained available for future purchases under the Purchase Plan.

13. Restructuring

On May 23, 2019, we implemented a strategic organizational restructuring, to principally align our operations around our vaccine business and significantly curtail further investment in our immuno-oncology business. In connection with the restructuring, we reduced our workforce by approximately 80 positions, or approximately 36%, of U.S.-based personnel. Also in connection with the restructuring, our Chief Executive Officer, also a member of the Board of Directors (the “Board”), submitted notice of his retirement from the Company and the Board, effective August 1, 2019. We expect the restructuring to be substantially complete and the costs incurred and paid by December 31, 2019. We are exploring strategic alternatives for our immuno-oncology business.

The total restructuring cost is estimated to be $9.4 million, of which $5.3 million is related to severance, other termination benefits and outplacement services and $4.1 million is related to stock-based compensation expense as a result of accelerated vesting of stock awards and extension of exercise period of stock options. During the three months ended June 30, 2019, we recognized restructuring charges of $8.8 million and the remaining $0.6 million is expected to be recognized by the end of 2019.

The outstanding restructuring liabilities are included in accrued liabilities on the condensed consolidated balance sheets. As of June 30, 2019, the components of the restructuring liabilities were as follows (in thousands):

	Severance and Other Termination Benefits
Balance at December 31, 2018	$ -
Restructuring charges (a)	4,655
Cash payments or settlements	-
Balance at June 30, 2019	$ 4,655

(a) Excludes stock-based compensation expense of $4.1 million

14. Subsequent Events

In July 2019, we entered into an Office Sublease (the "Powell Street Sublease") for office space located at 2100 Powell Street, Emeryville, California (the "Powell Street Premises"). The purpose of the Powell Street Sublease is to replace our current leased premises at 2929 Seventh Street, Berkeley, California. We moved our corporate headquarters to the Powell Street Premises on July 29, 2019.

Under the terms of the Powell Street Sublease, we are leasing 23,976 square feet in the Powell Street Premises at the rate of $3.90 per square foot, paid on a monthly basis. Rent is subject to scheduled annual increases and we are responsible for certain operating expenses and taxes throughout the life of the Powell Street Sublease. The Powell Street Sublease will continue until June 30, 2022.

Also in July 2019, we entered into a Sublease (the "Horton Street Sublease") to sublease the entire office/laboratory space located at 5959 Horton Street, Emeryville, California ("Horton Street Premises"). We had previously agreed to lease the Horton Street Premises as our new corporate headquarters ("Horton Street Master Lease"). See Note 6. We have not occupied and do not intend to occupy any of the Horton Street Premises.

Under the terms of the Horton Street Sublease, we are subleasing all of the Horton Street Premises consisting of 75,662 rentable square feet at the rate of $5.50 per square foot, paid on a monthly basis. Rent is subject to scheduled annual increases and the subtenant is responsible for certain operating expenses and taxes throughout the life of the Horton Street Sublease. The Horton Street Sublease will continue until March 31, 2031, concurrent with the term of our Horton Street Master Lease.

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

The following Management's Discussion and Analysis of Financial Condition and Results of Operations contains forward-looking statements that involve a number of risks and uncertainties. Our actual results could differ materially from those indicated by forward-looking statements as a result of various factors, including but not limited to, the period for which we estimate our cash resources are sufficient, the availability of additional funds, as well as those set forth under "Risk Factors" and those that may be identified from time to time in our reports and registration statements filed with the Securities and Exchange Commission.

The following discussion and analysis is intended to provide an investor with a narrative of our financial results and an evaluation of our financial condition and results of operations. This discussion should be read in conjunction with the unaudited Condensed Consolidated Financial Statements and related Notes included in Item 1 of this Quarterly Report on Form 10-Q and the Consolidated Financial Statements and related Notes and Management's Discussion and Analysis of Financial Condition and Results of Operations contained in our Annual Report on Form 10-K for the year ended December 31, 2018.

Overview

We are a fully-integrated biopharmaceutical company focused on leveraging the power of the body's innate and adaptive immune responses through toll-like receptor ("TLR") stimulation. We discover, develop and commercialize novel vaccines. We launched our first commercial product, HEPLISAV-B® [Hepatitis B Vaccine (Recombinant), Adjuvanted], in February 2018, following United States Food and Drug Administration ("FDA") approval for prevention of infection caused by all known subtypes of hepatitis B virus in adults age 18 years and older.

We have worldwide commercial rights to HEPLISAV-B. There are three other vaccines approved for the prevention of hepatitis B in the U.S.: Engerix-B and Twinrix® from GlaxoSmithKline plc ("GSK") and Recombivax-HB® from Merck & Co. ("Merck").

We commenced shipments of HEPLISAV-B in January 2018. Currently, total U.S. gross sales for adult hepatitis B vaccines is approximately $300 million annually, but we believe the market opportunity for HEPLISAV-B in the United States may be up to approximately $500 million annually. We are currently targeting approximately 25% of the total vaccine outlets, which we believe represent approximately 75% of hepatitis B vaccine sales in the U.S., with our field sales force team of approximately 60 people across 10 regions. We converted our contracted field sales team into full-time Dynavax employees in the second quarter of 2019.

In late 2012 the CDC's Advisory Committee on Immunization Practices expanded its recommendation for adults who should be vaccinated against hepatitis B to include people with diabetes mellitus (type 1 and type 2). According to the CDC there are 20 million adults diagnosed with diabetes and another 1.5 million new cases diagnosed each year. This population represents a significant increase in the number of adults recommended for vaccination against hepatitis B in the U.S

On May 23, 2019, we implemented a strategic organizational restructuring, to principally align our operations around our vaccine business and significantly curtail further investment in our immuno-oncology business. In connection with the restructuring, we reduced our workforce by approximately 80 positions, or approximately 36%, of U.S.-based personnel. Also in connection with the restructuring, our Chief Executive Officer, also a member of the Board of Directors (the "Board"), submitted notice of his retirement from the Company and the Board, effective August 1, 2019. We expect the restructuring to be substantially complete and the costs incurred and paid by December 31, 2019. We are exploring strategic alternatives for our immuno-oncology business.

Critical Accounting Policies and the Use of Estimates

The accompanying discussion and analysis of our financial condition and results of operations are based upon our condensed consolidated financial statements and the related disclosures, which have been prepared in accordance with U.S. generally accepted accounting principles. The preparation of these financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the balance sheet dates and the reported amounts of revenues and expenses for the periods presented. On an ongoing basis, we evaluate our estimates, assumptions and judgments described below that have the greatest potential impact on our condensed consolidated financial statements, including those related to leases. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Accounting assumptions and estimates are inherently uncertain and actual results may differ materially from these estimates under different assumptions or conditions.

While our significant accounting policies are more fully described in Note 1 to the condensed consolidated financial statements, we believe the following accounting policy reflects the new and the more critical and significant judgments and estimates used in the preparation of our condensed consolidated financial statements, that has been adopted since our latest Annual Report on Form 10-K for the year ended December 31, 2018.

Leases

On January 1, 2019, we adopted ASC 842, Leases, using the modified retrospective approach. Prior period amounts continue to be reported in accordance with our historic accounting under previous lease guidance, ASC 840, Leases. We elected the package of practical expedients which, among other things, allowed us to carry forward the historical lease classification of leases in place as of January 1, 2019. As a result of adopting ASC 842, we recognized right-of-use asset and lease liabilities for operating leases of $34.8 million and $37.1 million, respectively on January 1, 2019. There was no adjustment to the opening balance of accumulated deficit as a result of the adoption of ASC 842.

We determine if an arrangement includes a lease at inception. Operating leases are included in operating lease right-of-use assets, other current liabilities and long-term portion of lease liabilities in our condensed consolidated balance sheets. Right-of-use assets represent our right to use an underlying asset during the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease right-of-use assets and liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. In determining the net present value of lease payments, we use our incremental borrowing rate which represents an estimated rate of interest that we would have to pay to borrow equivalent funds on a collateralized basis at the lease commencement date.

The operating lease right-of-use assets also include any lease payments made and exclude any lease incentives. Our leases may include options to extend or terminate the lease which are included in the lease term when it is reasonably certain that we will exercise any such options. Lease expense is recognized on a straight-line basis over the expected lease term. We have elected not to apply the recognition requirements of ASC 842 for short-term leases.

Restructuring

Restructuring costs are comprised of severance, other termination benefit costs and stock-based compensation expense for stock award and stock option modifications related to workforce reductions. We recognize restructuring charges when the liability is incurred. Employee termination benefits are accrued at the date management has committed to a plan of termination and affected employees have been notified of their termination date and expected severance benefits.

Results of Operations

Revenues

Revenues consisted of amounts earned from product revenue and collaborations. The following is a summary of our revenues (in thousands, except for percentages):

	Three Months Ended June 30,		Increase (Decrease) from 2018 to 2019		Six Months Ended June 30,		Increase (Decrease) from 2018 to 2019	
Revenues:	**2019**	**2018**	**$**	**%**	**2019**	**2018**	**$**	**%**
Product revenue, net	$ 8,301	$ 1,254	$ 7,047	562%	$ 13,928	$ 1,419	$ 12,509	882%
Collaboration revenue	-	-	-	0%	146	-	146	NM
Total revenues	$ 8,301	$ 1,254	$ 7,047	562%	$ 14,074	$ 1,419	$ 12,655	892%

NM=Not Meaningful

We commenced commercial shipments of HEPLISAV-B in January 2018 and deployed our field sales force in February 2018. For the three and six months ended June 30, 2019, product revenue, net increased due to higher volume. Sales efforts continue to focus on advancing HEPLISAV-B through the complex and protracted approval and procurement processes in large institutional accounts across the country. We expect quarterly sales will increase during 2019 as additional healthcare providers complete their reviews and the operational activities required to switch to HEPLISAV-B and existing customers place repeat orders.

Revenue from product sales is recorded at the net sales price which includes estimates of product returns, chargebacks, discounts, rebates and other fees. Overall, product revenue, net, reflects our best estimates of the amount of consideration to which we are entitled based on the terms of the contract. Actual amounts of consideration ultimately received may differ from our estimates. If actual results in the future vary from our estimates, we will adjust these estimates, which would affect net product revenue and earnings in the period such variances become known.

Cost of Sales – Product

	Three Months Ended June 30,		Increase (Decrease) from 2018 to 2019		Six Months Ended June 30,		Increase (Decrease) from 2018 to 2019	
	2019	2018	$	%	2019	2018	$	%
Cost of sales - product	$ 2,141	$ 5,177	$ (3,036)	(59)%	$ 3,941	$ 5,382	$ (1,441)	(27)%

Cost of sales - product for the three and six months ended June 30, 2019 primarily includes certain fill, finish and overhead costs for pre-filled syringes (“PFS”) of HEPLISAV-B. Our HEPLISAV-B PFS finished goods inventory includes components for which a portion of the manufacturing costs were previously expensed to research and development prior to its FDA approval in March 2018. We expect to use this HEPLISAV-B PFS inventory over approximately the next nine months. Afterwards, we expect our cost of sales of HEPLISAV-B PFS to increase as a percentage of net sales in future periods as we produce and then sell inventory that reflects the full cost of manufacturing the product.

Cost of sales – product for the three and six months ended June 30, 2018 includes certain finish and overhead costs for HEPLISAV-B vials incurred after FDA approval in November 2017. The quarter ended June 30, 2018 also includes costs relating to excess capacity at our manufacturing facility in Düsseldorf which were previously included in research and development expense. The excess capacity charge is a result of costs associated with resuming operating activities at our manufacturing facility in Düsseldorf after receiving regulatory approval of pre-filled syringes (“PFS”) of HEPLISAV-B in late March 2018. Prior to FDA approval of HEPLISAV-B vials, costs to manufacture HEPLISAV-B were expensed to research and development as there was no alternative future use.

At June 30, 2019 and December 31, 2018, inventories, net were $36.6 million and $19.0 million, respectively.

Cost of Sales - Amortization of Intangible Assets

	Three Months Ended June 30,		Increase (Decrease) from 2018 to 2019		Six Months Ended June 30,		Increase (Decrease) from 2018 to 2019	
	2019	2018	$	%	2019	2018	$	%
Cost of sales - amortization of intangible assets	$ 2,297	$ 2,298	$ (1)	0%	$ 4,570	$ 4,715	$ (145)	(3)%

Cost of sales - amortization of intangible assets consists of amortization of the intangible asset recorded as a result of a regulatory milestone and sublicense fees to Coley Pharmaceutical Group, Inc. (“Coley”), Merck, Sharpe & Dohme Corp. (“Merck”) and GlaxoSmithKline Biologicals SA (“GSK”), upon or after FDA approval of HEPLISAV-B in November 2017. At June 30, 2019, the intangible assets related to Coley and GSK have been fully-amortized and the intangible asset related to Merck of $7.1 million has an estimated remaining useful life through the patent expiration date in April 2020.

Research and Development Expense

Research and development expense consists, primarily, of compensation and related personnel costs (which include benefits, recruitment, travel and supply costs), outside services, allocated facility costs and non-cash stock-based compensation. Outside services consist of costs associated with clinical development, preclinical discovery and development, regulatory filings and research, including fees and expenses incurred by contract research organizations, clinical study sites, and other service providers and costs of manufacturing product candidates prior to approval.

In May, 2019 we announced a strategic organizational restructuring to align our operations around our vaccine business and significantly curtail further investment in immuno-oncology research and development.

The following is a summary of our research and development expense (in thousands, except for percentages):

	Three Months Ended June 30,		Increase (Decrease) from 2018 to 2019		Six Months Ended June 30,		Increase (Decrease) from 2018 to 2019	
Research and Development:	**2019**	**2018**	**$**	**%**	**2019**	**2018**	**$**	**%**
Compensation and related personnel costs	$ 6,050	$ 7,512	$ (1,462)	(19)%	$ 13,954	$ 16,111	$ (2,157)	(13)%
Outside services	6,165	5,002	1,163	23%	14,896	10,668	4,228	40%
Facility costs	2,005	1,085	920	85%	4,396	3,598	798	22%
Non-cash stock-based compensation	1,976	2,674	(698)	(26)%	4,156	4,862	(706)	(15)%
Total research and development	$ 16,196	$ 16,273	$ (77)	0%	$ 37,402	$ 35,239	$ 2,163	6%

Compensation and related personnel costs decreased in the 2019 periods as the 2018 periods included certain employee recruiting and relocation costs. The first six months of 2019 compared to 2018 includes an overall increase in costs for outside services to support the development of SD-101 and earlier stage immuno-oncology programs prior to the restructuring. Facility costs, which include an overhead allocation of occupancy and related expenses, increased due to higher lease expense. Non-cash stock-based compensation decreased for both the three and six months ended June 30, 2019 compared to the prior periods due to the timing of vesting of certain stock awards granted in 2017.

Selling, General and Administrative Expense

Selling, general and administrative expense consists primarily of compensation and related costs for our commercial support personnel, medical education professionals and personnel in executive and other administrative functions, including legal, finance and information technology; costs for outside services such as costs for sales and marketing, post-marketing studies of HEPLISAV-B, accounting, commercial development, consulting, business development, investor relations and insurance; legal costs that include corporate and patent-related expenses; allocated facility costs and non-cash stock-based compensation.

The following is a summary of our selling, general and administrative expense (in thousands, except for percentages):

	Three Months Ended June 30,		Increase (Decrease) from 2018 to 2019		Six Months Ended June 30,		Increase (Decrease) from 2018 to 2019	
Selling, General and Administrative:	**2019**	**2018**	**$**	**%**	**2019**	**2018**	**$**	**%**
Compensation and related personnel costs	$ 8,353	$ 4,015	$ 4,338	108%	$ 13,467	$ 7,563	$ 5,904	78%
Outside services	4,564	7,484	(2,920)	(39)%	13,132	16,532	(3,400)	(21)%
Legal costs	677	667	10	1%	1,203	1,878	(675)	(36)%
Facility costs	1,797	490	1,307	267%	2,857	986	1,871	190%
Non-cash stock-based compensation	2,470	2,997	(527)	(18)%	5,550	5,585	(35)	(1)%
Total selling, general and administrative	$ 17,861	$ 15,653	$ 2,208	14%	$ 36,209	$ 32,544	$ 3,665	11%

For both the three and six months ended June 30, 2019 compared to 2018, the increase in compensation and related personnel costs and its related decrease in outside services was due to the conversion of the external sales force to our employees effective April 1, 2019. For the six months ended June 30, 2019 compared to 2018, legal costs decreased primarily due to outside counsel costs incurred in the first quarter of 2018 in connection with the loan financing. Facility costs, which includes an overhead allocation primarily comprised of occupancy and related expenses, increased due to higher lease expense. Non-cash stock-based compensation decreased for both the three and six months ended June 30, 2019 compared to the prior periods due to the timing of vesting of certain stock awards granted in 2017.

Restructuring

On May 23, 2019, we implemented a strategic organizational restructuring, to principally align our operations around our vaccine business and significantly curtail further investment in our immuno-oncology business. In connection with the restructuring, we reduced our workforce by approximately 80 positions, or approximately 36%, of U.S.-based personnel. Also in connection with the restructuring, our Chief Executive Officer, also a member of the Board of Directors (the "Board"), submitted notice of his retirement from the Company and the Board, effective August 1, 2019. We expect the restructuring to be substantially complete and the costs incurred and paid by December 31, 2019. We are exploring strategic alternatives for our immuno-oncology business.

The total restructuring cost is estimated to be $9.4 million, of which $5.3 million is related to severance, other termination benefits and outplacement services and $4.1 million is related to stock-based compensation expense as a result of accelerated vesting of stock awards and extension of exercise period of stock options. During the three months ended June 30, 2019, we recognized restructuring charges of $8.8 million and the remaining $0.6 million is expected to be recognized by the end of 2019.

Interest Income, Interest Expense and Other Expense, Net

Interest income is reported net of amortization of premiums and discounts on marketable securities and realized gains and losses on investments. Interest expense includes the stated interest and accretion of discount and end of term fee related to our long-term debt agreement entered into in February 2018. Other income (expense), net includes gains and losses on foreign currency transactions and disposal of property and equipment.

The following is a summary of our interest income, interest expense and other (expense) income, net (in thousands, except for percentages):

	Three Months Ended June 30,		Increase (Decrease) from 2018 to 2019		Six Months Ended June 30,		Increase (Decrease) from 2018 to 2019	
	2019	2018	$	%	2019	2018	$	%
Interest income	$ 979	$ 1,153	$ (174)	(15)%	$ 1,714	$ 1,893	$ (179)	(9)%
Interest expense	$ (4,598)	$ (2,691)	$ 1,907	71%	$ (7,332)	$ (3,852)	$ 3,480	90%
Other (expense) income, net	$ (123)	$ 241	$ (364)	(151)%	$ 58	$ 18	$ 40	222%

Interest expense increased due to the borrowing of the remaining $75.0 million term loan in March 2019 under a term loan agreement with CRG Servicing LLC ("Loan Agreement"). The change in other (expense) income, net is primarily due to foreign currency transactions resulting from fluctuations in the value of the Euro compared to the U.S. dollar.

Liquidity and Capital Resources

As of June 30, 2019, we had $140.5 million in cash, cash equivalents and marketable securities. Since our inception, we have relied primarily on the proceeds from public and private sales of our equity securities, borrowings, government grants and revenues from product sales and collaboration agreements to fund our operations. Our funds are currently invested in money market funds, U.S. treasuries, U.S. government agency securities and corporate debt securities. We currently anticipate that our cash, cash equivalents and short-term marketable securities and anticipated revenues from HEPLISAV-B will be sufficient to fund our operations for the next 10 months.

At June 30, 2019, $118.6 million of common stock remained available for sale under our At Market Sales Agreement with Cowen and Company, LLC ("2017 ATM Agreement").

During the six months ended June 30, 2019, we used $76.3 million of cash for our operations primarily due to our net loss of $82.4 million, of which $26.6 million consisted of non-cash charges such as stock-based compensation, amortization of intangible assets, amortization of right-of-use assets, depreciation and amortization, non-cash interest expense and accretion and amortization on marketable securities. By comparison, during the six months ended June 30, 2018, we used $63.8 million of cash for our operations primarily due to our net loss of $78.4 million, of which $17.9 million consisted of non-cash charges such as stock-based

compensation, amortization of intangible assets, depreciation and amortization, non-cash interest expense and accretion and amortization on marketable securities. Cash used in our operations during the first six months of 2019 increased by $12.5 million. During the first six months of 2019, we invested approximately $17.6 million in HEPLISAV-B inventory. Net cash used in operating activities is also impacted by changes in our operating assets and liabilities due to timing of cash receipts and expenditures.

During the six months ended June 30, 2019 and 2018, net cash used in investing activities was $27.4 million and $32.5 million, respectively. During the first six months of 2019 and 2018, net purchases of marketable securities was $9.0 million and $21.4 million, respectively. During the first six months of 2019, we paid $7.0 million of sublicense payment to Merck, compared to $9.5 million of milestone and sublicense payments to Coley and Merck during the first six months of 2018. Cash used in net purchases of property plant and equipment increased by $9.7 million during the first six months of 2019 compared to the same period in 2018. The increase is, primarily, due to the installation of facility improvements.

During the six months ended June 30, 2019 and 2018, net cash provided by financing activities was $88.6 million and $98.7 million, respectively. Cash provided by financing activities in the first six months of 2019 included net proceeds of $74.3 million from the second tranche of the Loan Agreement and net proceeds of $13.9 million from the issuance of common stock under our 2017 ATM Agreement. Cash provided by financing activities in the first six months of 2018 included net proceeds of $99.0 million from the Loan Agreement.

We expect to incur operating losses for the foreseeable future as we continue to invest in commercialization of HEPLISAV-B. Until we can generate a sufficient amount of revenue from product sales, we will need to finance our operations through strategic alliance and licensing arrangements and/or future public or private debt and equity financings. Adequate financing may not be available to us on acceptable terms, or at all. If adequate funds are not available when needed, we may need to significantly reduce our operations while we seek strategic alternatives, which could have an adverse impact on our ability to achieve our intended business objectives.

Our ability to raise additional capital in the equity and debt markets, should we choose to do so, is dependent on a number of factors, including, but not limited to, the market demand for our common stock, which itself is subject to a number of development and business risks and uncertainties, our creditworthiness and the uncertainty that we would be able to raise such additional capital at a price or on terms that are favorable to us. Raising additional funds through the issuance of equity or debt securities could result in dilution to our existing stockholders, increased fixed payment obligations, or both. In addition, these securities may have rights senior to those of our common stock and could include covenants that would restrict our operations.

Contractual Obligations

On March 29, 2019, we borrowed the remaining $75.0 million (the “Second Tranche Term Loan”) from the $175.0 million term loan agreement with CRG Servicing LLC. We initially borrowed $100.0 million (the “Initial Term Loan”) at closing on February 20, 2018. The principal amounts of Initial Term Loan and Second Tranche Term Loan totaling $178.2 million, which includes paid-in-kind interest, have a maturity date of December 31, 2023, unless earlier prepaid.

We have entered into material purchase commitments with commercial manufacturers for the supply of HEPLISAV-B. As of June 30, 2019, our non-cancelable purchase commitments totaled $12.5 million.

There were no other material changes to the contractual obligations previously disclosed in our Annual Report on Form 10-K for the year ended December 31, 2018.

Off-balance Sheet Arrangements

We do not have any off-balance sheet arrangements as defined by rules enacted by the Securities and Exchange Commission and, accordingly, no such arrangements are likely to have a current or future effect on our financial position.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

During the six months ended June 30, 2019, there were no material changes to our market risk disclosures as set forth in Part II, Item 7A, "Quantitative and Qualitative Disclosures About Market Risk" in our Annual Report on Form 10-K for the year ended December 31, 2018.

ITEM 4. CONTROLS AND PROCEDURES

(a) Evaluation of disclosure controls and procedures

We maintain disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act")) that are designed to ensure that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms and that such information is accumulated and communicated to our management, including our Co-Principal Executive Officers and Principal Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can only provide reasonable, not absolute, assurance of achieving the desired control objectives.

Based on their evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report, our management, with participation of our Co-Principal Executive Officers and our Chief Financial Officer, concluded that our disclosure controls and procedures are effective and were operating at the reasonable assurance level to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms.

(b) Changes in internal controls

There have been no changes in our internal controls over financial reporting as defined in Rule 13a – 15(f) under the Exchange Act during our most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal controls over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time in the ordinary course of business, we receive claims or allegations regarding various matters, including employment, vendor and other similar situations in the conduct of our operations. We are not currently aware of any material legal proceedings involving the Company.

ITEM 1A. RISK FACTORS

Various statements in this Quarterly Report on Form 10-Q are forward-looking statements concerning our future efforts to obtain regulatory approval, achieve restructuring goals, commercialize approved products, expenses, revenues, liquidity and cash needs, as well as our plans and strategies. These forward-looking statements are based on current expectations and we assume no obligation to update this information. Numerous factors could cause our actual results to differ significantly from the results described in these forward-looking statements, including the following risk factors. We have marked with an asterisk (*) those risks described below that reflect material changes from, or additions to, the risks described under Part 1, Item 1A "Risk Factors" included in our Annual Report on Form 10-K for the year ended December 31, 2018 that was filed with the Securities and Exchange Commission on February 27, 2019.

Risks Related to our Business and Capital Requirements

HEPLISAV-B has been launched in the United States and there is significant competition in the marketplace. Since this is our first marketed product, the timing of uptake and distribution efforts are unpredictable and there is a risk that we may not achieve and sustain commercial success for HEPLISAV-B.

We have established sales, marketing and distribution capabilities and commercialized HEPLISAV-B in the U.S. Successful commercialization of HEPLISAV-B will require significant resources and time and, while Dynavax personnel are experienced with respect to marketing of healthcare products, because HEPLISAV-B is the company's first marketed product, the potential uptake of the product in distribution and the timing for growth in sales, if any, is unpredictable and we may not be successful in commercializing HEPLISAV-B. In particular, successful commercialization of HEPLISAV-B will require that we continue to negotiate and enter into contracts with wholesalers, distributors, group purchasing organizations, and other parties, and that we maintain those contractual relationships. There is a risk that we may not complete or maintain all of these important contracts on favorable terms or that in a potentially evolving reimbursement environment our efforts can overcome established competition at favorable pricing.

We converted our contracted field sales team into full-time Dynavax employees in the second quarter of 2019. The conversion of the field sales team to employees will require additional internal resources, both in the conversion process and for ongoing administrative and logistical support. We have not previously employed an in-house field sales team, and thus have limited experience in overseeing and managing an employed salesforce. In addition, retention of capable sales personnel may be more difficult with a single product offering and we must retain our salesforce in order for HEPLISAV-B to establish a commercial presence.

Moreover, we expect that significant resources will need to be invested in order to successfully market, sell and distribute HEPLISAV-B for use with diabetes patients, one of our targeted patient populations. Although the Centers for Disease Control and Prevention ("CDC") and the CDC's Advisory Committee on Immunization Practices ("ACIP") recommend that patients with diabetes receive hepatitis B vaccinations, we are unable to predict how many of those patients may receive HEPLISAV-B.

In addition to the risks with employing and maintaining our own commercial capabilities and with contracting, other factors that may inhibit our efforts to successfully commercialize HEPLISAV-B include:

- whether we are able to recruit and retain adequate numbers of effective sales and marketing personnel;
- whether we are able to access key health care providers to discuss HEPLISAV-B;
- whether we can compete successfully as a new entrant in established distribution channels for vaccine products; and
- whether we will maintain sufficient funding to cover the costs and expenses associated with creating and sustaining a capable sales and marketing organization and related commercial infrastructure.

If we are not successful, we may be required to collaborate or partner HEPLISAV-B with a third party pharmaceutical or biotechnology company with existing products. To the extent we collaborate or partner, the financial value will be shared with another party and we will need to establish and maintain a successful collaboration arrangement, and we may not be able to enter into these arrangements on acceptable terms or in a timely manner in order to establish HEPLISAV-B in the market. To the extent that we enter into co-promotion or other arrangements, any revenues we receive will depend upon the efforts of third parties, which may not be successful and are only partially in our control. In that event, our product revenues may be lower than if we marketed and sold our products directly with the highest priority, and we may be required to reduce or eliminate much of our commercial infrastructure and personnel as a result of such collaboration or partnership.

If we, or our partners, if any, are not successful in setting our marketing, pricing and reimbursement strategies, recruiting and maintaining effective sales and marketing personnel or in building and maintaining the infrastructure to support commercial operations, we will have difficulty successfully commercializing HEPLISAV-B, which would adversely affect our business and financial condition.

We face uncertainty regarding coverage, pricing and reimbursement and the practices of third-party payors, which may make it difficult or impossible to sell our product or product candidates on commercially reasonable terms.

In both domestic and foreign markets, our ability to achieve profitability will depend in part on the negotiation of a favorable price, as well as the availability of coverage and adequate reimbursement, from third-party payors, in particular for HEPLISAV-B, where existing products are already marketed. In the U.S., pricing for hepatitis B vaccines is currently stable and reimbursement is favorable as private and public payors recognize the value of prophylaxis in this setting given the high costs of potential morbidity and mortality, and we have achieved coverage with most third-party payors. However, there is a risk that some payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include HEPLISAV-B. Thus, there can be no assurance that HEPLISAV-B will achieve and sustain stable pricing and favorable reimbursement. Our ability to successfully obtain and retain market share and achieve and sustain profitability will be significantly dependent on the market's acceptance of a price for HEPLSIAV-B sufficient to achieve profitability, and future acceptance of such pricing.

Third-party payors are increasingly challenging the price and cost-effectiveness of medical products and services, and pricing, as well as coverage and reimbursement decisions may not allow our future products to compete effectively with existing competitive products. Because we intend to offer products, if approved, that involve new technologies and new approaches to treating disease, the willingness of third-party payors to reimburse for our products is uncertain. We will have to charge a price for our products that is sufficient to enable us to recover our considerable investment in product development and our operating costs. Adequate third-party payor reimbursement may not be available to enable us to maintain price levels sufficient to achieve profitability, and such unavailability could harm our future prospects and reduce our stock price.

Also, there has been heightened governmental scrutiny recently in the U.S. over pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the federal level, the Trump administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, the Trump administration released a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. The U.S. Department of Health and Human Services, or HHS, has already started the process of soliciting feedback on some of these measures and, at the same, is immediately implementing others under its existing authority. For example, in September 2018, CMS announced that it will allow Medicare Advantage Plans the option to use step therapy for Part B drugs beginning January 1, 2019, and in October 2018, CMS proposed a new rule that would require direct-to-consumer television advertisements of prescription drugs and biological products, for which payment is available through or under Medicare or Medicaid, to include in the advertisement the Wholesale Acquisition Cost, or list price, of that drug or biological product. On January 31, 2019, the HHS Office of Inspector General proposed modifications to the federal Anti-Kickback Statute safe harbors which, among other things, may affect rebates paid by manufacturers to Medicare Part D plans, the purpose of which is to further reduce the cost of drug products to consumers. While a number of these and other proposed measures will require authorization through additional legislation to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, and restrictions on certain product access. In some cases, such legislation and regulations have been designed to encourage importation from other countries and bulk purchasing. There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. We cannot predict the initiatives that may be adopted in the future or the effect any such initiatives may have on our business.

We have recently announced a strategic restructuring to prioritize our vaccine business and explore strategic alternatives for our immuno-oncology portfolio, and we cannot assure you that we will be able to successfully execute on a strategic alternative for our immuno-oncology portfolio.*

In the second quarter of 2019, we announced that we would be undertaking a strategic restructuring that would focus our efforts on HEPLISAV-B, which included a reduction in our workforce and operations to focus resources on HEPLISAV-B commercialization and sales execution as well as assess additional opportunities to leverage our 1018 adjuvant. Additionally, we announced that we would be seeking strategic alternatives for our immuno-oncology portfolio, including our development stage products such as SD-101 and DV281. In connection with the restructuring, we made the determination to wind down ongoing immuno-oncology trials. Our ability to successfully execute on a strategic alternative for our immuno-oncology portfolio is dependent on a number of factors and we may not be able to execute upon a transaction or other strategic alternative for our immuno-oncology portfolio upon favorable terms within an advantageous timeframe and recognize significant value for these assets, if at all. Additionally, the negotiation and consummation of a transaction or other strategic alternative involving our immuno-oncology may be costly and time-consuming. Our strategic restructuring may not result in anticipated savings or other economic benefits, could result in total costs and expenses that are greater than expected, could make it more difficult to attract and retain qualified personnel and may disrupt our operations, each of which could have a material adverse effect on our business.

We are subject to ongoing FDA post-marketing obligations concerning HEPLISAV-B, which may result in significant additional expense, and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with HEPLISAV-B.

Our HEPLISAV-B regulatory approval is subject to certain post-marketing obligations and commitments to the FDA. We must conduct an observational comparative study of HEPLISAV-B to another hepatitis B vaccine to assess occurrence of acute myocardial infarction; must conduct an observational surveillance study to evaluate the incidence of new onset immune-mediated diseases, herpes zoster and anaphylaxis; and must establish a pregnancy registry to provide information on outcomes following pregnancy exposure to HEPLISAV-B. These studies will require significant effort and resources, and failure to timely conduct these studies to the satisfaction of FDA could result in withdrawal of our BLA approval. The results of post-marketing studies may also result in additional warnings or precautions for the HEPLISAV-B label or expose additional safety concerns that may result in product liability and withdrawal of the product from the market, which would have a material adverse effect on our business, results of operations, financial condition and prospects.

In addition, the manufacturing processes, labelling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for HEPLISAV-B are subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs, GCPs, ICH guidelines, and GLPs. If we are not able to meet and maintain regulatory compliance, we may lose marketing approval and be required to withdraw our product. As noted in the preceding paragraph, withdrawal would have a material adverse effect on our business.

If HEPLISAV-B or any products we develop are not accepted by the market or if regulatory agencies limit our labeling indications, require labeling content that diminishes market uptake of HEPLISAV-B or any other products we develop, or limits our marketing claims, we may be unable to generate significant revenues, if any.*

Even if we obtain regulatory approval for our product candidates, such as the FDA approval of HEPLISAV-B in November 2017, and are able to commercialize them as we have with HEPLISAV-B, our products may not gain market acceptance among physicians, patients, healthcare payors and the medical community.

The degree of market acceptance of HEPLISAV-B and any of our future approved products will depend upon a number of factors, including:

- the indication for which the product is approved and its approved labeling;
- the presence of other competing approved therapies;
- the potential advantages of the product over existing and future treatment methods;
- the relative convenience and ease of administration of the product;
- the strength of our sales, marketing and distribution support;
- the price and cost-effectiveness of the product; and
- third-party coverage and adequate reimbursement and the willingness of patients to pay out-of-pocket in the absence of sufficient reimbursement by third-party payors.

The FDA or other regulatory agencies could limit the labeling indication for which our product candidates may be marketed or could otherwise limit marketing efforts for our products. If we are unable to achieve approval or successfully market any of our product candidates, or marketing efforts are restricted by regulatory limits, our ability to generate revenues could be significantly impaired.

Many of our competitors have greater financial resources and expertise than we do. If we are unable to successfully compete with existing or potential competitors as a result of these disadvantages, we may be unable to generate revenues and our business will be harmed.*

We compete with pharmaceutical companies, biotechnology companies, academic institutions and research organizations, in developing and marketing therapies to prevent or treat cancer and infectious and inflammatory diseases. For example, HEPLISAV-B competes in the U.S. with established hepatitis B vaccines marketed by Merck and GlaxoSmithKline plc ("GSK") and if approved outside the U.S., with vaccines from those companies as well as several additional established pharmaceutical companies.

Existing and potential competitors may also compete with us for qualified commercial, scientific and management personnel, as well as for technology that would otherwise be advantageous to our business. Our success in developing marketable products and achieving a competitive position will depend, in part, on our ability to attract and retain qualified personnel in the near-term, particularly with respect to HEPLISAV-B commercialization. If we do not succeed in attracting new personnel and retaining and motivating existing personnel, our operations may suffer and we may be unable to obtain financing, enter into collaborative arrangements, sell our product candidates or generate revenues.

We have incurred net losses in each year since our inception and anticipate that we will continue to incur significant losses for the foreseeable future unless we can successfully commercialize HEPLISAV-B, and if we are unable to achieve and sustain profitability, the market value of our common stock will likely decline.*

We have generated limited revenue from the sale of products and have incurred losses in each year since we commenced operations in 1996. Our net losses for the six months ended June 30, 2019 and 2018 were $82.4 million and $78.4 million, respectively. As of June 30, 2019, we had an accumulated deficit of $1.1 billion.

With our investment in the launch and commercialization of HEPLISAV-B in the U.S., we expect to continue incurring operating losses for the foreseeable future. Our expenses have increased substantially as we established and maintain our HEPLISAV-B commercial infrastructure, including investments in internal infrastructure to support our plans for converting our contracted field sales force to Dynavax employees and investments in manufacturing and supply chain commitments to maintain commercial supply of HEPLISAV-B. The timing for uptake of our product in the U.S. has further increased losses related to commercialization, and the advancement of our oncology pipeline has historically increased our costs as we conducted more and larger studies to invest in clinical development. While we anticipate operating expenditures related to external oncology costs will decrease as a result of our strategic restructuring, due to the numerous risks and uncertainties associated with developing and commercializing vaccine and pharmaceutical products, we are unable to predict the extent of any future losses or when, if ever, we will become profitable.

Until we are able to generate significant revenues or achieve profitability through product sales, we will require substantial additional capital to finance our operations.*

As of June 30, 2019, we had $140.5 million in cash, cash equivalents and marketable securities. We currently anticipate that our cash, cash equivalents and marketable securities and anticipated revenues from HEPLISAV-B will be sufficient to allow the Company to fund its current operations through the first quarter of 2020. We expect to incur operating losses for the foreseeable future as we continue to invest in commercialization of HEPLISAV-B, including investment in HEPLISAV-B inventory, manufacturing and seek strategic alternatives for our immuno-oncology product candidates. Until we can generate a sufficient amount of revenue, we will need to finance our operations through strategic alliance and licensing arrangements and/or public or private debt and equity financings. Adequate financing may not be available to us on acceptable terms, or at all. If adequate funds are not available when needed, we may need to significantly reduce our operations while we seek additional strategic alternatives, which could have an adverse impact on our ability to achieve our business objectives.

Our ability to raise additional capital in the equity and debt markets, should we choose to do so, is dependent on a number of factors, including, but not limited to, the market demand for our common stock, which itself is subject to a number of development and business risks and uncertainties, our creditworthiness and the uncertainty that we would be able to raise such additional capital at a price or on terms that are favorable to us. Raising additional funds through the issuance of equity or debt securities could result in dilution to our existing stockholders, increased fixed payment obligations, or both. In addition, these securities may have rights senior to those of our common stock and could include covenants that would restrict our operations.

We may develop, seek regulatory approval for and market HEPLISAV-B or any other product candidates we may develop outside the U.S., requiring a significant commitment of resources. Failure to successfully manage our international operations could result in significant unanticipated costs and delays in regulatory approval or commercialization of our product candidates.*

We may seek to introduce HEPLISAV-B, or any other product candidates we may develop, in various markets outside the U.S. Developing, seeking regulatory approval for and marketing our product candidates outside the U.S. could impose substantial costs as well as burdens on our personnel resources in addition to potential diversion of management's attention from domestic operations. International operations are subject to risk, including:

- the difficulty of managing geographically distant operations, including recruiting and retaining qualified employees, locating adequate facilities and establishing useful business support relationships in the local community;
- compliance with varying international regulatory requirements, laws and treaties;
- securing international distribution, marketing and sales capabilities upon favorable terms;
- adequate protection of our intellectual property rights;
- obtaining regulatory and pricing approvals at a level sufficient to justify commercialization;
- legal uncertainties and potential timing delays associated with tariffs, export licenses and other trade barriers;
- diverse tax consequences;
- the fluctuation of conversion rates between foreign currencies and the U.S. dollar; and
- regional and geopolitical risks.

In the event that we determine to commercialize HEPLISAV-B outside the United States, such as in Europe, the product is not approved and our opportunity will depend upon our receiving regulatory approval, which can be costly and time consuming, and there is a risk that one or more regulatory bodies may require that we conduct additional clinical trials and/or take other measures which will take time and require that we incur significant additional expense. In addition, there is the risk that we may not receive approval in one or more jurisdictions. In March, 2019, we submitted, and the European Medical Agency ("EMA") accepted, our Marketing Authorization Application ("MAA") for HEPLISAV-B. We may not be able to provide sufficient data or respond to comments to our MAA sufficient to obtain regulatory approval in Europe in a reasonable time period or at all.

Any failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in other jurisdictions. If we are unable to successfully manage our international operations, we may incur significant unanticipated costs and delays in regulatory approval or commercialization of our product candidates, which would impair our ability to generate revenues.

Clinical trials for our commercial product and product candidates are expensive and time consuming, may involve combinations with other agents, may take longer than we expect or may not be completed at all, and their outcomes are uncertain.*

Clinical trials, including post-marketing studies, to generate sufficient data to meet FDA requirements are expensive and time consuming.

We are currently winding down existing clinical trials of SD-101 and DV281, including combination studies with other oncology agents, and seeking strategic alternatives for these product candidates. Most of our combination agent study partners, such as Merck & Co. ("Merck"), are significantly larger than we are and have conducted various other combination studies with other immuno-oncology agents and collaborators. We are not certain these clinical trials will be successful, or that even if successful we would be able to reach agreement to conduct larger, more extensive clinical trials required to achieve regulatory approval for a combination product candidate regimen. In addition, results from smaller, earlier stage clinical studies may not be representative of larger, controlled clinical trials that would be required in order to obtain regulatory approval of a product candidate or a combination of product candidates.

Each of our clinical trials requires the investment of substantial planning, expense and time and the timing of the commencement, continuation and completion of these clinical trials may be subject to significant delays relating to various causes, including scheduling conflicts with participating clinicians and clinical institutions, difficulties in identifying and enrolling participants who meet trial eligibility criteria, failure of participants to complete the clinical trial, delay or failure to obtain Institutional Review Board ("IRB") or regulatory approval to conduct a clinical trial at a prospective site, unexpected adverse events and shortages of available drug supply. Participant enrollment is a function of many factors, including the size of the relevant population, the proximity of participants to clinical sites, the eligibility criteria for the trial, the existence of competing clinical trials and the availability of alternative or new treatments.

As a biopharmaceutical company, we engage CROs to conduct clinical studies, and failure by us or our CROs to conduct a clinical study in accordance with GCP standards and other applicable regulatory requirements could result in disqualification of the applicable clinical trial from consideration in support of approval of a potential product.*

We are responsible for conducting our clinical trials consistent with GCP standards and for oversight of our vendors to ensure that they comply with such standards. We depend on medical institutions and CROs to conduct our clinical trials in compliance with GCP. To the extent that they fail to comply with GCP standards, fail to enroll participants for our clinical trials, or are delayed for a significant time in the execution of our trials, including achieving full enrollment, we may be affected by increased costs, program delays or both, which may harm our business.

Clinical trials must be conducted in accordance with FDA or other applicable foreign government guidelines and are subject to oversight by the FDA, other foreign governmental agencies and IRBs at the medical institutions where the clinical trials are conducted. In addition, clinical trials must be conducted with supplies of our product candidates produced under GMP and other requirements in foreign countries, and may require large numbers of participants.

In addition, we obtain guidance from regulatory authorities on certain aspects of our clinical development activities and seek to comply with written guidelines provided by the authorities. These discussions and written guidelines are not binding obligations on the part of the regulatory authorities and the regulatory authorities may require additional patient data or studies to be conducted. Regulatory authorities may revise or retract previous guidance during the course of a clinical trial or after completion of the trial. The authorities may also disqualify a clinical trial from consideration in support of approval of a potential product if they deem the guidelines have not been met. The FDA or foreign regulatory agencies may determine our clinical trials or other data regarding safety, efficacy or consistency of manufacture or compliance with GMP regulations are insufficient for regulatory approval.

The FDA or other foreign governmental agencies or we ourselves could delay, suspend or halt our clinical trials of a product candidate for numerous reasons, including with respect to our product candidates and those of our partners in combination agent studies:

- deficiencies in the trial design;
- deficiencies in the conduct of the clinical trial including failure to conduct the clinical trial in accordance with regulatory requirements or clinical protocols;
- deficiencies in the clinical trial operations or trial sites resulting in the imposition of a clinical hold;
- a product candidate may have unforeseen adverse side effects, including fatalities, or a determination may be made that a clinical trial presents unacceptable health risks;
- the time required to determine whether a product candidate is effective may be longer than expected;
- fatalities or other adverse events arising during a clinical trial that may not be related to clinical trial treatments;
- a product candidate or combination study may appear to be no more effective than current therapies;
- the quality or stability of a product candidate may fail to conform to acceptable standards;
- the inability to produce or obtain sufficient quantities of a product candidate to complete the trials;
- our inability to reach agreement on acceptable terms with prospective CROs and trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- our inability to obtain IRB approval to conduct a clinical trial at a prospective site;
- the inability to obtain regulatory approval to conduct a clinical trial;
- lack of adequate funding to continue a clinical trial, including the occurrence of unforeseen costs due to enrollment delays, requirements to conduct additional trials and studies and increased expenses associated with the services of our CROs and other third parties;
- the inability to recruit and enroll individuals to participate in clinical trials for reasons including competition from other clinical trial programs for the same or similar indications; or
- the inability to retain participants who have initiated a clinical trial but may withdraw due to side effects from the therapy, lack of efficacy or personal issues, or who are lost to further follow-up.

In addition, we may experience significant setbacks in advanced clinical trials, even after promising results in earlier trials, such as unexpected adverse events that occur when our product candidates are combined with other therapies and drugs or given to larger patient populations, which often occur in later-stage clinical trials, or less favorable clinical outcomes. Moreover, clinical results are frequently susceptible to varying interpretations that may delay, limit or prevent regulatory approvals.

Third party organizations such as patient advocacy groups and parents of trial participants may demand additional clinical trials or continued access to drug even if our interpretation of clinical results received thus far leads us to determine that additional clinical trials or continued access are unwarranted. Any disagreement with patient advocacy groups or parents of trial participants may require management's time and attention and may result in legal proceedings being instituted against us, which could be expensive, time-consuming and distracting, and may result in delay of the program. Negative or inconclusive results or adverse medical events, including participant fatalities that may be attributable to our product candidates, during a clinical trial may necessitate that it be redesigned, repeated or terminated. Further, some of our clinical trials may be overseen by a Data Safety Monitoring Board ("DSMB"), and the DSMB may determine to delay or suspend one or more of these trials due to safety or futility findings based on events occurring during a clinical trial. Any such delay, suspension, termination or request to repeat or redesign a trial could increase our costs and prevent or significantly delay our ability to commercialize our product candidates.

The FDA may require more clinical trials for our product candidates than we currently expect or are conducting before granting regulatory approval, if regulatory approval is granted at all. Our clinical trials may be extended which may lead to substantial delays in the regulatory approval process for our product candidates and may impair our ability to generate revenues.

Our registration and commercial timelines depend on further discussions with the FDA and corresponding foreign regulatory agencies and requirements and requests they may make for additional data or completion of additional clinical trials. Any such requirements or requests could:

- adversely affect our ability to timely and successfully commercialize or market these product candidates;
- result in significant additional costs;
- potentially diminish any competitive advantages for those products;
- potentially limit the markets for those products;
- adversely affect our ability to enter into collaborations or receive milestone payments or royalties from potential collaborators;
- cause us to abandon the development of the affected product candidate; or
- limit our ability to obtain additional financing on acceptable terms, if at all.

HEPLISAV-B, SD-101 and most of our earlier stage programs rely on oligonucleotide TLR agonists. Serious adverse event data relating to TLR agonists may require us to reduce the scope of or discontinue our operations, or reevaluate the viability of strategic alternatives.*

Most of our programs, including HEPLISAV-B and SD-101, incorporate TLR9 agonist CpG oligonucleotides. If any of our product candidates in clinical trials or similar products from competitors produce serious adverse event data, we may be required to delay, discontinue or modify our clinical trials or our clinical trial strategy, or significantly reevaluate strategic alternatives. If a safety risk based on mechanism of action or the molecular structure were identified, it may hinder our ability to develop our product candidates or enter into potential collaboration or commercial arrangements. Rare diseases and a numerical imbalance in cardiac adverse events have been observed in patients in our clinical trials. If adverse event data are found to apply to our TLR agonist and/or inhibitor technology as a whole, we may be required to significantly reduce or discontinue our operations.

We rely on our facility in Düsseldorf, Germany and third parties to supply materials or perform processes necessary to manufacture HEPLISAV-B and our product candidates. We rely on a limited number of suppliers to produce the oligonucleotides we require for development and commercialization. Additionally, we have limited experience in manufacturing our product candidates in commercial quantities. With respect to HEPLISAV-B, we have switched to a pre-filled syringe presentation of the vaccine and our ability to meet future demand will depend on our ability to manufacture sufficient supply in this presentation.

We rely on our facility in Düsseldorf and third parties to perform the multiple processes involved in manufacturing HEPLISAV-B certain antigens, the combination of the oligonucleotide and the antigens, and formulation, fill and finish. The FDA approved our pre-filled presentation of HEPLISAV-B in 2018 and we expect such presentation will be the sole presentation for HEPLISAV-B going forward. We have limited experience in manufacturing and supplying this presentation, and there can be no assurance that we can successfully manufacture sufficient quantities of pre-filled syringes in compliance with GMP in order to meet market demand.

We have also relied on a limited number of suppliers to produce oligonucleotides for clinical trials and a single supplier to produce our 1018 for HEPLISAV-B. To date, we have manufactured only small quantities of oligonucleotides ourselves for development purposes. If we were unable to maintain our existing supplier for 1018, we would have to establish an alternate qualified manufacturing capability, which would result in significant additional operating costs and delays in developing and commercializing our product candidates, particularly HEPLISAV-B. We or other third parties may not be able to produce product at a cost, quantity and quality that are available from our current third-party suppliers or at all.

In countries outside of the U.S., we may not be able to comply with ongoing and comparable foreign regulations, and our manufacturing process may be subject to delays, disruptions or quality control/quality assurance problems. Noncompliance with these regulations or other problems with our manufacturing process may limit or disrupt the commercialization of HEPLISAV-B or our other product candidates and could result in significant expense.

HEPLISAV-B is subject to FDA obligations and continued regulatory review, and if we receive regulatory approval for our other product candidates, we will be subject to ongoing FDA and foreign regulatory obligations and continued regulatory review for such products.

With respect to HEPLISAV-B and our other product candidates in development, we and our third party manufacturers and suppliers are required to comply with applicable GMP regulations and other international regulatory requirements. The regulations require that our product candidates be manufactured and records maintained in a prescribed manner with respect to manufacturing, testing and quality control/quality assurance activities. Manufacturers and suppliers of key components and materials must be named in a BLA submitted to the FDA for any product candidate for which we are seeking FDA approval. Additionally, third party manufacturers and suppliers and any manufacturing facility must undergo a pre-approval inspection before we can obtain marketing authorization for any of our product candidates. Even after a manufacturer has been qualified by the FDA, the manufacturer must continue to expend time, money and effort in the area of production and quality control to ensure full compliance with GMP. Manufacturers are subject to regular, periodic inspections by the FDA following initial approval. Further, to the extent that we contract with third parties for the manufacture of our products, our ability to control third-party compliance with FDA requirements will be limited to contractual remedies and rights of inspection.

If, as a result of the FDA's inspections, it determines that the equipment, facilities, laboratories or processes do not comply with applicable FDA regulations and conditions of product approval, the FDA may not approve the product or may suspend the manufacturing operations. If the manufacturing operations of any of the suppliers for our product candidates are suspended, we may be unable to generate sufficient quantities of commercial or clinical supplies of product to meet market demand, which would harm our business. In addition, if delivery of material from our suppliers were interrupted for any reason, we might be unable to ship our approved product for commercial supply or to supply our products in development for clinical trials. Significant and costly delays can occur if the qualification of a new supplier is required.

Further, in March, 2019, we submitted, and the EMA accepted, our MAA for HEPLISAV-B. We may not be able to provide sufficient data or respond to comments to our MAA sufficient to obtain regulatory approval in Europe in a reasonable time period or at all. Any failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in other jurisdictions. If we are unable to successfully manage our international operations, we may incur significant unanticipated costs and delays in regulatory approval or commercialization of our product candidates, which would impair our ability to generate revenues.

Failure to comply with regulatory requirements could prevent or delay marketing approval or require the expenditure of money or other resources to correct. Failure to comply with applicable requirements may also result in warning letters, fines, injunctions, civil penalties, recall or seizure of products, total or partial suspension of production, refusal of the government to renew marketing applications and criminal prosecution, any of which could be harmful to our ability to generate revenues and our stock price.

Any regulatory approvals that we receive for our product candidates are likely to contain requirements for post-marketing follow-up studies, which may be costly. Product approvals, once granted, may be modified based on data from subsequent studies or commercial use. As a result, limitations on labeling indications or marketing claims, or withdrawal from the market may be required if problems occur after approval and commercialization.

A key part of our business strategy for products in development is to establish collaborative relationships to help fund development and commercialization of our product candidates and research programs. We may not succeed in establishing and maintaining collaborative relationships, which may significantly limit our ability to continue to develop and commercialize those products and programs, if at all.*

We may need to establish collaborative relationships to obtain domestic and/or international sales, marketing, research, development and distribution capabilities for our product candidates and our discovery research programs. Failure to obtain a collaborative relationship for those product candidates and programs or HEPLISAV-B in markets outside the U.S. requiring extensive sales efforts, may significantly impair the potential for those products and programs and we may be required to raise additional capital to continue them. The process of establishing and maintaining collaborative relationships is difficult and time-consuming, and even if we establish such relationships, they may involve significant uncertainty, including:

- our partners may seek to renegotiate or terminate their relationships with us due to unsatisfactory clinical results, manufacturing issues, a change in business strategy, a change of control or other reasons;
- our shortage of capital resources may impact the willingness of companies to collaborate with us;
- our contracts for collaborative arrangements are terminable at will on written notice and may otherwise expire or terminate and we may not have alternative funding available;
- our partners may choose to pursue alternative technologies, including those of our competitors;
- we may have disputes with a partner that could lead to litigation or arbitration;
- we have limited control over the decisions of our partners and they may change the priority of our programs in a manner that would result in termination of the agreement or add significant delay in the partnered program;
- our ability to generate future payments and royalties from our partners depends upon the abilities of our partners to establish the safety and efficacy of our drug candidates, obtain regulatory approvals and successfully manufacture and achieve market acceptance of products developed from our drug candidates;
- we or our partners may fail to properly initiate, maintain or defend our intellectual property rights, where applicable, or a party may use our proprietary information in such a way as to invite litigation that could jeopardize or potentially invalidate our proprietary information or expose us to potential liability;
- our partners may not devote sufficient capital or resources towards our product candidates; and
- our partners may not comply with applicable government regulatory requirements.

Supporting diligence activities conducted by potential collaborators and negotiating the financial and other terms of a collaboration agreement are long and complex processes with uncertain results. Even if we are successful in entering into one or more collaboration agreements, collaborations may involve greater uncertainty for us, as we may have less control over certain aspects of our collaborative programs than we do over our proprietary development and commercialization programs, and the financial terms upon which collaborators may be willing to enter into such an arrangement cannot be certain.

If any collaborator fails to fulfill its responsibilities in a timely manner, or at all, our research, clinical development, manufacturing or commercialization efforts pursuant to that collaboration could be delayed or terminated, or it may be necessary for us to assume responsibility for expenses or activities that would otherwise have been the responsibility of our collaborator. Despite our efforts, we may be unable to secure collaborative arrangements. If we are unable to establish and maintain collaborative relationships on acceptable terms or to successfully transition terminated collaborative agreements, we may have to delay or discontinue further development of one or more of our product candidates, undertake development and commercialization activities at our own expense or find alternative sources of capital.

The term loan agreement we entered into in February 2018 imposes significant operating and financial restrictions on us that may prevent us from pursuing certain business opportunities and restrict our ability to operate our business.

In February, 2018, we entered into a term loan agreement under which we have borrowed $178.2 million, which includes paid-in-kind interest. The agreement contains covenants that restrict our ability to take various actions, including, among other things, incur additional indebtedness, pay dividends or distributions or make certain investments, create or incur certain liens, transfer, sell, lease or dispose of assets, enter into transactions with affiliates, consummate a merger or sell or other dispose of assets. The agreement also requires us to comply with a daily minimum liquidity covenant and an annual revenue requirement based on the sales of HEPLISAV-B, which is $30 million for fiscal year 2019. The agreement specifies a number of events of default, some of which are subject to applicable grace or cure periods, including, among other things, non-payment defaults, covenant defaults, cross-defaults to other material indebtedness, bankruptcy and insolvency defaults, and non-payment of material judgments.

Our ability to comply with these covenants will likely be affected by many factors, including events beyond our control, and we may not satisfy those requirements. Our failure to comply with our obligations could result in an event of default and the acceleration of our repayment obligation at a time when we may not have the cash to comply with that obligation, which could result in a seizure of most of our assets. The restrictions contained in the agreement could also limit our ability to meet capital needs or otherwise restrict our activities and adversely affect our ability to finance our operations, enter into acquisitions or to engage in other business activities that would be in our interest.

We rely on CROs and Clinical Sites and Investigators for our clinical trials. If these third parties do not fulfill their contractual obligations or meet expected deadlines, our planned clinical trials may be delayed and we may fail to obtain the regulatory approvals necessary to commercialize our product candidates.

We rely on CROs, Clinical Sites and Investigators for our clinical trials. If these third parties do not perform their obligations or meet expected deadlines our planned clinical trials may be extended, delayed, modified or terminated. While we maintain oversight over our clinical trials and conduct regular reviews of the data, we are dependent on the processes and quality control efforts of our third party contractors to ensure that clinical trials are conducted properly and that detailed, quality records are maintained to support the results of the clinical trials that they are conducting on our behalf. Any extension, delay, modification or termination of our clinical trials or failure to ensure adequate documentation and the quality of the results in the clinical trials could delay or otherwise adversely affect our ability to commercialize our product candidates and could have a material adverse effect on our business and operations.

As we focus on commercialization of HEPLISAV-B, we may encounter difficulties in managing our commercial growth and expanding our operations successfully.*

As our commercial operations expand, we expect that we will also need to manage additional relationships with various third parties, including sole source suppliers, distributors, wholesalers and hospital customers. Future growth, including managing an in-house field sales team, will impose significant added responsibilities on our organization, in particular on management. Our future financial performance and our ability to successfully commercialize HEPLISAV-B and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we may not be able to manage our growth efforts effectively, and hire, train and integrate additional management, administrative and sales and marketing personnel, and our failure to accomplish any of these activities could prevent us from successfully growing our company.

If we fail to comply with the extensive requirements applicable to biopharmaceutical manufacturers and marketers under the healthcare fraud and abuse, anticorruption, privacy, transparency and other laws of the jurisdictions in which we conduct our business, we may be subject to significant liability.

Our activities, and the activities of our agents, including some contracted third parties, are subject to extensive government regulation and oversight both in the U.S. and in foreign jurisdictions. Our interactions with physicians and others in a position to prescribe or purchase our products are subject to a legal regime designed to prevent healthcare fraud and abuse and off-label promotion. We also are subject to laws pertaining to transparency of transfers of value to healthcare providers; privacy and data protection; compliance with industry voluntary compliance guidelines; and prohibiting the payment of bribes. Relevant U.S. laws include:

- the federal Anti-Kickback Statute, which prohibits persons from, among other things, knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal health care programs, such as the Medicare and Medicaid programs;
- federal false claims laws, including the civil False Claims Act, and civil monetary penalty law, which prohibit individuals or entities from, among other things, knowingly presenting, or causing to be presented, claims for payment to the government or its agents that are false or fraudulent;
- the Federal Food, Drug and Cosmetic Act and governing regulations which, among other things, prohibit off-label promotion of prescription drugs;
- the federal Physician Payments Sunshine Act created under the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education and Reconciliation Act of 2010 (collectively, “PPACA”) which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services (“CMS”), information related to payments and other transfers of value to physicians, other healthcare providers, and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members;
- the federal Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), which created, among other things, new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and their implementing regulations, which imposes certain requirements relating to the privacy, security, and transmission of individually identifiable health information;
- the Foreign Corrupt Practices Act, which prohibits the payment of bribes to foreign government officials and requires that a company's books and records accurately reflect the company's transactions; and
- foreign and state law equivalents of each of the federal laws described above, such as anti-kickback and false claims laws which may apply to items or services reimbursed by state health insurance programs or any third party payor, including commercial insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the applicable compliance guidance promulgated by the federal government; state laws that require drug manufacturers to report information on the pricing of certain drugs; state and local laws that require the registration of pharmaceutical sales representatives; and state and foreign laws governing the privacy and security of health information, many of which differ from each other in significant ways and often are not preempted by HIPAA.

The Office of Inspector General for the Department of Health and Human Services, the Department of Justice, states' Attorneys General and other governmental authorities actively enforce the laws and regulations discussed above. These entities also coordinate extensively with the FDA, using legal theories that connect violations of the Federal Food, Drug and Cosmetic Act (such as off-label promotion) to the eventual submission of false claims to government healthcare programs. Prosecution of such promotion cases under the federal civil False Claims Act provides the potential for private parties (qui tam relators, or "whistleblowers") to initiate cases on behalf of the government and provides for significantly higher penalties upon conviction.

In the U.S., pharmaceutical and biotechnology companies have been the target of numerous government prosecutions and investigations alleging violations of law, including claims asserting impermissible off-label promotion of pharmaceutical products, payments intended to influence the referral of federal or state health care business, submission of false claims for government reimbursement, or submission of incorrect pricing information.

Violations of any of the laws described above or any other applicable governmental regulations and other similar foreign laws may subject us, our employees or our agents to criminal, civil and administrative penalties, including fines, civil monetary penalties, exclusion from participation in government health care programs (including Medicare and Medicaid), disgorgement, individual imprisonment, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws and the restriction or restructuring of our operations, any of which could adversely affect our ability to operate our business and our financial results. Additionally, whether or not we have complied with the law, an investigation into alleged unlawful conduct may cause us to incur significant expense, cause reputational damage, divert management time and attention, and otherwise adversely affect our business. While we have developed and instituted a corporate compliance program, we cannot guarantee that we, our employees, our consultants, contractors, or other agents are or will be in compliance with all applicable U.S. or foreign laws.

We expect there will continue to be federal and state laws and/or regulations, proposed and implemented, that could impact our operations and business. For example, the PPACA, among other things, imposes a significant annual fee on companies that manufacture or import branded prescription drug products. It also contains substantial provisions intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, and impose additional health policy reforms, any or all of which may affect our business. Some of the provisions of PPACA have yet to be fully implemented, and there have been legal and political challenges to certain aspects of PPACA. Since January 2017, President Trump has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by PPACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of PPACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the PPACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or Tax Act, includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by PPACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". On January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain PPACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. The Bipartisan Budget Act of 2018, or the BBA, among other things, amends the PPACA, effective January 1, 2019, to increase from 50 percent to 70 percent the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D and close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole". In July 2018, CMS published a final rule permitting further collections and payments to and from certain PPACA qualified health plans and health insurance issuers under the PPACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. On December 14, 2018, a Texas U.S. District Court Judge ruled that the PPACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. While the Texas U.S. District Court Judge, as well as the Trump administration and CMS, have stated that the ruling will have no immediate effect pending appeal of the decision, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the PPACA will impact the PPACA and on our business.

Other legislative changes have also been proposed and adopted since the PPACA was enacted. For example, the Budget Control Act of 2011 resulted in aggregate reductions in Medicare payments to providers of up to two percent per fiscal year, starting in 2013 and, due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2027 unless additional Congressional action is taken. In addition, the American Taxpayer Relief Act of 2012, among other things, reduced Medicare payments to several types of providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. Such laws, and others that may affect our business that have been recently enacted or may in the future be enacted, may result in additional reductions in Medicare and other healthcare funding.

In the future, there will likely continue to be additional proposals relating to the reform of the U.S. healthcare system, some of which could further limit coverage and reimbursement of products, including our product candidates. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our products.

The loss of key personnel could delay or prevent achieving our objectives. In addition, our continued growth to support commercialization may result in difficulties in managing our growth and expanding our operations successfully.*

We depend on our senior executive officers, as well as other key scientific personnel. Our commercial and business efforts could be adversely affected by the loss of one or more key members of our commercial or management staff, including our senior executive officers. We currently have no key person insurance on any of our employees.

As our operations expand, we expect that we will need to manage additional relationships with various vendors, partners, suppliers and other third parties. Future growth will impose significant added responsibilities on members of management. Our future financial performance and our ability to successfully commercialize HEPLISAV-B and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we must be able to effectively manage our commercialization efforts, research efforts and clinical trials and hire, train and integrate additional regulatory, manufacturing, administrative, and sales and marketing personnel. We may not be able to accomplish these tasks, and our failure to accomplish any of them could prevent us from successfully growing our company and achieving profitability.

We face product liability exposure, which, if not covered by insurance, could result in significant financial liability.

While we have not experienced any product liability claims to date, the use of any of our product candidates in clinical trials and the sale of any approved products, including HEPLISAV-B, will subject us to potential product liability claims and may raise questions about a product's safety and efficacy. As a result, we could experience a delay in our ability to commercialize one or more of our product candidates or reduced sales of any approved product candidates. In addition, a product liability claim may exceed the limits of our insurance policies and exhaust our internal resources. We have obtained limited clinical trial liability and umbrella insurance coverage for our clinical trials. This coverage may not be adequate or may not continue to be available in sufficient amounts, at an acceptable cost or at all. While we have obtained product liability insurance coverage for HEPLISAV-B, there is a risk that this coverage may not be adequate or may not continue to be available in sufficient amounts, at an acceptable cost or at all. We also may not be able to obtain commercially reasonable product liability insurance for any product approved for marketing in the future. A product liability claim, product recalls or other claims, as well as any claims for uninsured liabilities or in excess of insured liabilities, would divert our management's attention from our business and could result in significant financial liability.

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

On December 22, 2017, President Trump signed into law legislation, known as the Tax Cuts and Jobs Act of 2017, that significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected.

We use hazardous materials and controlled substances in our business. Any claims or liabilities relating to improper handling, storage or disposal of these materials and substances could be time consuming and costly to resolve.

Our research and product development activities involve the controlled storage, use and disposal of hazardous and radioactive materials and biological waste, and controlled substances. We are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of these materials, substances, and certain waste products. We believe we are currently in compliance with all government permits that are required for the storage, use and disposal of these materials and controlled substances. However, we cannot eliminate the risk of accidental contamination or injury to persons or property from these materials, or that controlled substances will be accidentally stored or used in violation of relevant federal, state and local requirements. In the event of an accident related to hazardous materials or a violation of requirements pertaining to controlled substances, we could be held liable for damages, cleanup costs or penalized with fines, and this liability could exceed the limits of our insurance policies and exhaust our internal resources. We may have to incur significant costs to comply with future environmental laws and regulations, and laws and regulations pertaining to the storage and use of controlled substances.

Significant disruptions of information technology systems or breaches of data security could adversely affect our business.

Our business is increasingly dependent on critical, complex and interdependent information technology systems, including internet-based systems, to support business processes as well as internal and external communications. The size and complexity of our computer systems make them potentially vulnerable to breakdown, malicious intrusion and computer viruses that may result in the impairment of key business processes.

In addition, our systems are potentially vulnerable to data security breaches—whether by employees or others—that may expose sensitive data to unauthorized persons. Such data security breaches could lead to the loss of trade secrets or other intellectual property, or could lead to the public exposure of personally identifiable information (including sensitive personal information) of our employees, collaborators, clinical trial patients, and others. A data security breach or privacy violation that leads to disclosure or modification of or prevents access to patient information, including personally identifiable information or protected health information, could harm our reputation, compel us to comply with federal, state and/or international breach notification laws, subject us to mandatory corrective action, require us to verify the correctness of database contents and otherwise subject us to liability under laws and regulations that protect personal data, including but not limited to HIPAA, similar state data protection regulations, and the E.U. General Data Protection Regulation, or GDPR (EU) 2016/679, resulting in significant penalties, increased costs or loss of revenue.

On June 28, 2018, California adopted the California Consumer Privacy Act of 2018 (“CCPA”). The CCPA has been characterized as the first “GDPR-like” privacy statute to be enacted in the United States because it mirrors a number of the key provisions in the GDPR. The CCPA gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. The CCPA may increase our compliance costs and potential liability. The effective date of the CCPA is January 1, 2020, however, legislators have stated that they intend to propose amendments to the CCPA before it goes into effect. We are continuing to analyze the CCPA in order to determine its applicability and impact to our business.

If we are unable to prevent such data security breaches or privacy violations or implement satisfactory remedial measures, our operations could be disrupted, and we may suffer loss of reputation, financial loss and other regulatory penalties because of lost or misappropriated information, including sensitive patient data. In addition, these breaches and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. Moreover, the prevalent use of mobile devices that access confidential information increases the risk of data security breaches, which could lead to the loss of confidential information, trade secrets or other intellectual property. While we have implemented security measures to protect our data security and information technology systems, such measures may not prevent such events.

Such disruptions and breaches of security could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to our Intellectual Property

We rely on licenses to intellectual property from third parties. Impairment of these licenses or our inability to maintain them would severely harm our business.

Our current research and development efforts depend in part upon our license arrangements for intellectual property owned by third parties. Our dependence on these licenses subjects us to numerous risks, such as disputes regarding the use of the licensed intellectual property and the creation and ownership of new discoveries under such license agreements. In addition, these license arrangements require us to make timely payments to maintain our licenses and typically contain diligence or milestone-based termination provisions. Our failure to meet any obligations pursuant to these agreements could allow our licensors to terminate our agreements or undertake other remedies such as converting exclusive to non-exclusive licenses if we are unable to cure or obtain waivers for such failures or amend such agreements on terms acceptable to us. In addition, our license agreements may be terminated or may expire by their terms, and we may not be able to maintain the exclusivity of these licenses. If we cannot obtain and maintain licenses that are advantageous or necessary to the development or the commercialization of our product candidates, we may be required to expend significant time and resources to develop or license similar technology or to find other alternatives to maintaining the competitive position of our products. If such alternatives are not available to us in a timely manner or on acceptable terms, we may be unable to continue development or commercialize our product candidates. In the absence of a current license, we may be required to redesign our technology so it does not infringe a third party's patents, which may not be possible or could require substantial funds and time.

If third parties successfully assert that we have infringed their patents and proprietary rights or challenge our patents and proprietary rights, we may become involved in intellectual property disputes and litigation that would be costly, time consuming and delay or prevent development or commercialization of our product candidates.

We may be exposed to future litigation by third parties based on claims that our product candidates or proprietary technologies infringe their intellectual property rights, or we may be required to enter into litigation to enforce patents issued or licensed to us or to determine the ownership, scope or validity of our or another party's proprietary rights, including a challenge as to the validity of our issued and pending claims. From time to time we are involved in various interference and other administrative proceedings related to our intellectual property which has caused us to incur certain legal expenses. If we become involved in any litigation and/or other significant interference proceedings related to our intellectual property or the intellectual property of others, we will incur substantial additional expenses and it will divert the efforts of our technical and management personnel.

If we or our collaborators are unsuccessful in defending or prosecuting our issued and pending claims or in defending potential claims against our products, for example, as may arise in connection with the commercialization of HEPLISAV-B or any similar product candidate, we or our collaborator could be required to pay substantial damages or be unable to commercialize our product candidates or use our proprietary technologies without a license from such third party. A license may require the payment of substantial fees or royalties, require a grant of a cross-license to our technology or may not be available on acceptable terms, if at all. Any of these outcomes could require us to change our business strategy and could materially impact our business and operations.

If the combination of patents, trade secrets and contractual provisions that we rely on to protect our intellectual property is inadequate, the value of our product candidates will decrease.

Our success depends on our ability to:

- obtain and protect commercially valuable patents or the rights to patents both domestically and abroad;
- operate without infringing upon the proprietary rights of others; and
- prevent others from successfully challenging or infringing our proprietary rights.

We will be able to protect our proprietary rights from unauthorized use only to the extent that these rights are covered by valid and enforceable patents for a commercially sufficient term or are otherwise effectively maintained as trade secrets. We try to protect our proprietary rights by filing and prosecuting U.S. and foreign patent applications. However, in certain cases such protection may be limited, depending in part on existing patents held by third parties, which may only allow us to obtain relatively narrow patent protection. In the U.S., legal standards relating to the validity and scope of patent claims in the biopharmaceutical field can be highly uncertain, are still evolving and involve complex legal and factual questions for which important legal principles remain unresolved.

The biopharmaceutical patent environment outside the U.S. is even more uncertain. We may be particularly affected by this uncertainty since several of our product candidates may initially address market opportunities outside the U.S., where we may only be able to obtain limited patent protection.

The risks and uncertainties that we face with respect to our patents and other proprietary rights include the following:

- we may not receive an issued patent for any of our patent applications or for any patent applications that we have exclusively licensed;
- the pending patent applications we have filed or to which we have exclusive rights may take longer than we expect to result in issued patents;
- the claims of any patents that are issued may not provide meaningful protection or may not be valid or enforceable;
- we might not be able to develop additional proprietary technologies that are patentable;
- the patents licensed or issued to us or our collaborators may not provide a competitive advantage;
- patents issued to other parties may limit our intellectual property protection or harm our ability to do business;
- other parties may independently develop similar or alternative technologies or duplicate our technologies and commercialize discoveries that we attempt to patent; and
- other parties may design around technologies we have licensed, patented or developed.

We also rely on trade secret protection and confidentiality agreements to protect our interests in proprietary know-how that is not patentable and for processes for which patents are difficult to enforce. We cannot be certain that we will be able to protect our trade secrets adequately. Any disclosure of confidential data in the public domain or to third parties could allow our competitors to learn our trade secrets. If we are unable to adequately obtain or enforce proprietary rights, we may be unable to commercialize our products, enter into collaborations, generate revenues or maintain any advantage we may have with respect to existing or potential competitors.

Risks Related to an Investment in our Common Stock

Our stock price is subject to volatility, and your investment may suffer a decline in value.*

The market prices for securities of biopharmaceutical companies have in the past been, and are likely to continue in the future, to be, very volatile. The market price of our common stock is subject to substantial volatility depending upon many factors, many of which are beyond our control, including:

- progress or results of any of our clinical trials or regulatory or manufacturing efforts, in particular any announcements regarding the progress or results of our planned trials and BLA filing and communications, from the FDA or other regulatory agencies;
- our ability to receive timely regulatory approval for our product candidates;
- our ability to establish and maintain collaborations for the development and commercialization of our product candidates;
- our ability to raise additional capital to fund our operations;
- the success or failure of clinical trials involving our immuno-oncology product candidates and the product candidates of third party collaborators in combination studies;
- technological innovations, new commercial products or drug discovery efforts and preclinical and clinical activities by us or our competitors;
- changes in our intellectual property portfolio or developments or disputes concerning the proprietary rights of our products or product candidates;
- our ability to obtain component materials and successfully enter into manufacturing relationships for our product candidates or establish manufacturing capacity on our own;
- our ability to establish and maintain licensing agreements for intellectual property necessary for the development of our product candidates;
- changes in government regulations, general economic conditions or industry announcements;
- changes in the structure of healthcare payment systems;
- issuance of new or changed securities analysts’ reports or recommendations;
- actual or anticipated fluctuations in our quarterly financial and operating results; and
- the volume of trading in our common stock.

One or more of these factors could cause a substantial decline in the price of our common stock. In addition, securities class action and shareholder derivative litigation has often been brought against a company following a decline in the market price of its securities. We have in the past been, and we may in the future be, the target of such litigation. Securities and shareholder derivative litigation could result in substantial costs, and divert management's attention and resources, which could harm our business, operating results and financial condition.

We will continue to incur increased costs and demands upon management as a result of complying with the laws and regulations affecting public companies, which could affect our operating results.

As a public company, we will continue to incur legal, accounting and other expenses associated with reporting requirements and corporate governance requirements, including requirements under the Sarbanes-Oxley Act of 2002 as well as any new rules implemented by the Securities and Exchange Commission and the Nasdaq Stock Market LLC. We may need to continue to implement additional financial and accounting systems, procedures and controls to accommodate changes in our business and organization and to comply with new reporting requirements. There can be no assurance that we will be able to maintain a favorable assessment as to the adequacy of our internal control over financial reporting. If we are unable to reach an unqualified assessment, or our independent registered public accounting firm is unable to issue an unqualified attestation as to the effectiveness of our internal control over financial reporting as of the end of our fiscal year, investors could lose confidence in the reliability of our financial reporting which could harm our business and could impact the price of our common stock.

Future sales of our common stock or the perception that such sales may occur in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. As of June 30, 2019 we had 65,154,729 shares of common stock outstanding, all of which shares were eligible for sale in the public market, subject in some cases to the volume limitations and manner of sale requirements under Rule 144 of the Securities Act of 1933, as amended.

Under our universal shelf registration statement filed by us in August 2017, we may sell any combination of common stock, preferred stock, debt securities and warrants in one or more offerings, including pursuant to our 2017 ATM Agreement with Cowen under which we can offer and sell our common stock from time to time up to aggregate sales proceeds of $150 million. As of June 30, 2019, we have $118.6 million remaining under this agreement. The sale or issuance of our securities, as well as the existence of outstanding options and shares of common stock reserved for issuance under our option and equity incentive plans also may adversely affect the terms upon which we are able to obtain additional capital through the sale of equity securities.

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

None.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

Exhibit Number	Document	Incorporated by Reference				Filed Herewith
		Exhibit Number	Filing	Filing Date	File No.	
3.1	Sixth Amended and Restated Certificate of Incorporation	3.1	S-1/A	February 5, 2004	333-109965	
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation	3.1	8-K	January 4, 2010	001-34207	
3.3	Certificate of Amendment of Amended and Restated Certificate of Incorporation	3.1	8-K	January 5, 2011	001-34207	
3.4	Certificate of Amendment of Amended and Restated Certificate of Incorporation	3.6	8-K	May 30, 2013	001-34207	
3.5	Certificate of Amendment of the Sixth Amended and Restated Certificate of Incorporation	3.1	8-K	November 10, 2014	001-34207	
3.6	Certificate of Amendment of the Sixth Amended and Restated Certificate of Incorporation	3.1	8-K	June 2, 2017	001-34207	
3.7	Certificate of Amendment of the Sixth Amended and Restated Certificate of Incorporation	3.1	8-K	July 31, 2017	001-34207	
3.8	Amended and Restated Bylaws	3.8	10-Q	November 6, 2018	001-34207	
4.1	Reference is made to Exhibits 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 and 3.8 above					
4.2	Form of Specimen Common Stock Certificate	4.2	S-1/A	January 16, 2004	333-109965	
10.1+	Amended and Restated 2018 Equity Incentive Plan					X
10.2+	Form of Amended and Restated Management Continuity and Severance Agreement between the Company and certain of its executive officers					X
10.3+	Co-President Officer Letter, dated May 30, 2019, between the Company and David Novack					X
10.4+	Co-President Officer Letter, dated May 30, 2019, between the Company and Ryan Spencer					X
31.1	Certification of Co-Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Co-Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X

Exhibit Number	Document	Incorporated by Reference				Filed Herewith
		Exhibit Number	Filing	Filing Date	File No.	
31.3	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1*	Certification of Co-Principal Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
32.2*	Certification of Co-Principal Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
32.3*	Certification of Principal Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X

EX—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.
EX—101.SCH	XBRL Taxonomy Extension Schema Document
EX—101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
EX—101.DEF	XBRL Taxonomy Extension Definition Linkbase
EX—101.LAB	XBRL Taxonomy Extension Labels Linkbase Document
EX—101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

+ Indicates management contract, compensatory plan or arrangement.

* The certifications attached as Exhibits 32.1 and 32.2 that accompany this Quarterly Report on Form 10-Q, are not deemed filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of this Form 10-Q), irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Emeryville, State of California.

DYNAVAX TECHNOLOGIES CORPORATION

Date: August 7, 2019

By: /s/ DAVID NOVACK
David Novack
Co-President, Senior Vice President, Operations
(Co-Principal Executive Officer)

Date: August 7, 2019

By: /s/ RYAN SPENCER
Ryan Spencer
Co-President, Senior Vice President, Commercial
(Co-Principal Executive Officer)

Date: August 7, 2019

By: /s/ MICHAEL OSTRACH
Michael Ostrach
Chief Financial Officer
(Principal Financial Officer)

Date: August 7, 2019

By: /s/ DAVID JOHNSON
David Johnson
Vice President, Chief Accounting Officer
(Principal Accounting Officer)

DYNAVAX TECHNOLOGIES CORPORATION
2018 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: APRIL 8, 2018
APPROVED BY THE STOCKHOLDERS: MAY 31, 2018
AMENDED AND RESTATED BY THE BOARD OF DIRECTORS: APRIL 9, 2019
APPROVED BY THE STOCKHOLDERS: MAY 30, 2019

1. GENERAL.

(a) Successor to and Continuation of 2011 Plan. The Plan is intended as the successor to and continuation of the Dynavax Technologies Corporation 2011 Equity Incentive Plan (the "***2011 Plan***"). Following the Effective Date, no additional awards may be granted under the 2011 Plan or the Dynavax Technologies Corporation 2017 Inducement Award Plan (the "***2017 Inducement Plan***") (each of the 2011 Plan and 2017 Inducement Plan, a "***Prior Plan***"). Any unallocated shares remaining available for grant under the 2011 Plan as of 12:01 a.m. Pacific Time on the Effective Date (the "***2011 Plan's Available Reserve***") will cease to be available under the 2011 Plan at such time and will be added to the Share Reserve (as defined in Section 3(a)(i)) and be then immediately available for grant and issuance pursuant to Awards granted under this Plan. From and after 12:01 a.m. Pacific Time on the Effective Date, except as provided in Sections 9(c), 9(d) and 9(e), all outstanding stock awards granted under either of the Prior Plans (each, a "***Prior Plan Award***") will remain subject to the terms of the applicable Prior Plan; *provided*, *however*, that the following shares of Common Stock subject to any outstanding Prior Plan Award (collectively, the "***Prior Plans' Returning Shares***") will immediately be added to the Share Reserve (as defined in Section 3(a)(i)) as and when such shares become Prior Plans' Returning Shares and will become available for grant and issuance pursuant to Awards granted under this Plan: (i) any shares subject to such stock award that are not issued because such stock award or any portion thereof expires or otherwise terminates without all of the shares covered by such stock award having been issued; (ii) any shares subject to such stock award that are not issued because such stock award or any portion thereof is settled in cash; and (iii) any shares issued pursuant to such stock award that are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required for the vesting of such shares. All Awards granted on or after 12:01 a.m. Pacific Time on the Effective Date will be subject to the terms of this Plan.

(b) Eligible Award Recipients. Subject to Section 4, Employees and Directors are eligible to receive Awards.

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

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

2. ADMINISTRATION.

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

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

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

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

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

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

(v) To suspend or terminate the Plan at any time. Except as otherwise provided in the Plan (including Section 2(b)(viii)) or an Award Agreement, suspension or termination of the Plan will not materially impair a Participant's rights under an outstanding Award without his or her written consent.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments relating to Incentive Stock Options and certain nonqualified deferred compensation under Section 409A of the Code and/or to make the Plan or Awards granted under the Plan compliant with the requirements for Incentive Stock Options or exempt from or compliant with the requirements for nonqualified deferred compensation under Section 409A of the Code, subject to the limitations, if any, of applicable law. However, if required by applicable law or listing requirements, and except as provided in Section 9(a) relating to Capitalization Adjustments, the Company will seek stockholder approval of any amendment of the Plan that (A) materially increases the number of shares of Common Stock available for issuance under the Plan, (B) materially expands the class of individuals eligible to receive Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan, (D) materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, or (E) materially expands the types of Awards available for issuance under the Plan. Except as otherwise provided in the Plan (including Section 2(b)(viii)) or an Award Agreement, no amendment of the Plan will materially impair a Participant's rights under an outstanding Award without his or her written consent.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of (A) Section 422 of the Code regarding incentive stock options or (B) Rule 16b-3.

(viii) To approve forms of Award Agreements for use under the Plan and to amend the terms of any one or more outstanding Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided, however,* that except as otherwise provided in the Plan (including this Section 2(b)(viii)) or an Award Agreement, no amendment of an outstanding Award will materially impair a Participant's rights under such Award without his or her written consent.

Notwithstanding the foregoing or anything in the Plan to the contrary, unless prohibited by applicable law, the Board may amend the terms of any outstanding Award or the Plan, or may suspend or terminate the Plan, without the affected Participant's consent, (A) to maintain the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code, (B) to change the terms of an Incentive Stock Option, if such change results in impairment of the Award solely because it impairs the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code, (C) to clarify the manner of exemption from, or to bring the Award or the Plan into compliance with, Section 409A of the Code or (D) to comply with other applicable laws or listing requirements.

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

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

(c) Delegation to Committee.

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

(ii) Rule 16b-3 Compliance. The Committee may consist solely of two or more Non-Employee Directors in accordance with Rule 16b-3.

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

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

(f) Cancellation and Re-Grant of Awards. Neither the Board nor any Committee will have the authority to (i) reduce the exercise or strike price of any outstanding Option or SAR or (ii) cancel any outstanding Option or SAR that has an exercise or strike price (per share) greater than the then-current Fair Market Value of the Common Stock in exchange for cash or other Awards under the Plan, unless the stockholders of the Company have approved such an action within 12 months prior to such an event.

(g) Minimum Vesting Requirements. No Award may vest (or, if applicable, be exercisable) until at least 12 months following the date of grant of the Award; *provided, however*, that shares of Common Stock up to 5% of the Share Reserve (as defined in Section 3(a)(i)) may be issued pursuant to Awards that do not meet such vesting (and, if applicable, exercisability) requirements.

(h) Dividends and Dividend Equivalents. Dividends or dividend equivalents may be paid or credited, as applicable, with respect to any shares of Common Stock subject to an Award, as determined by the Board and contained in the applicable Award Agreement; *provided, however*, that (i) no dividends or dividend equivalents may be paid with respect to any such shares before the date such shares have vested under the terms of such Award Agreement, (ii) any dividends or dividend equivalents that are credited with respect to any such shares will be subject to all of the terms and conditions applicable to such shares under the terms of such Award Agreement (including, but not limited to, any vesting conditions), and (iii) any dividends or dividend equivalents that are credited with respect to any such shares will be forfeited to the Company on the date, if any, such shares are forfeited to or repurchased by the Company due to a failure to meet any vesting conditions under the terms of such Award Agreement.

3. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve.

(i) Subject to Section 3(a)(iii) and Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Awards from and after the Effective Date will not exceed (A) 7,440,250 shares (which number is the sum of (i) the number of shares (140,250) subject to the 2011 Plan's Available Reserve, (ii) an additional 5,000,000 shares that were approved at the Company's 2018 Annual Meeting of Stockholders, and (iii) an additional 2,300,000 shares that were approved at the Company's 2019 Annual Meeting of Stockholders), *plus* (B) the Prior Plans' Returning Shares, if any, which become available for issuance under this Plan from time to time (such aggregate number of shares described in (A) and (B), the "***Share Reserve***").

(ii) Subject to Section 3(b), the number of shares of Common Stock available for issuance under the Plan will be reduced by: (A) one share for each share of Common Stock issued pursuant to an Appreciation Award granted under the Plan; (B) 1.28 shares for each share of Common Stock issued pursuant to a Full Value Award granted under the Plan prior to May 30, 2019; and (C) 1.40 shares for each share of Common Stock issued pursuant to a Full Value Award granted under the Plan on or after May 30, 2019.

(iii) Subject to Section 3(b), the number of shares of Common Stock available for issuance under the Plan will be increased by: (A) one share for each Prior Plans' Returning Share or 2018 Plan Returning Share (as defined in Section 3(b)(i)) subject to an Appreciation Award; (B) 1.28 shares for each Prior Plans' Returning Share or 2018 Plan Returning Share subject to a Full Value Award that returns to the Plan prior to May 30, 2019; and (C) 1.40 shares for each Prior Plans' Returning Share or 2018 Plan Returning Share subject to a Full Value Award that returns to the Plan on or after May 30, 2019.

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

(b) Reversion of Shares to the Share Reserve.

(i) Shares Available for Subsequent Issuance. The following shares of Common Stock (collectively, the "***2018 Plan Returning Shares***") will become available again for issuance under the Plan: (A) any shares subject to an Award that are not issued because such Award or any portion thereof expires or otherwise terminates without all of the shares covered by such Award having been issued; (B) any shares subject to an Award that are not issued because such Award or any portion thereof is settled in cash; and (C) any shares issued pursuant to an Award that are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required for the vesting of such shares.

(ii) Shares Not Available for Subsequent Issuance. The following shares of Common Stock will not become available again for issuance under the Plan: (A) any shares that are reacquired or withheld (or not issued) by the Company to satisfy the exercise, strike or purchase price of an Award or a Prior Plan Award (including any shares subject to such award that are not delivered because such award is exercised through a reduction of shares subject to such award (*i.e.*, "net exercised")); (B) any shares that are reacquired or withheld (or not issued) by the Company to satisfy a tax withholding obligation in connection with an Award or a Prior Plan Award; (C) any shares repurchased by the Company on the open market with the proceeds of the exercise, strike or purchase price of an Award or a Prior Plan Award; and (D) in the event that a Stock Appreciation Right granted under the Plan or a stock appreciation right granted under either of the Prior Plans is settled in shares of Common Stock, the gross number of shares of Common Stock subject to such award.

(c) Incentive Stock Option Limit. Subject to the Share Reserve and Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options will be 10,000,000 shares.

(d) Non-Employee Director Compensation Limit. The aggregate value of all cash and equity-based compensation granted or paid, as applicable, by the Company to any individual for service as a Non-Employee Director with respect to any fiscal year of the Company will not exceed (i) a total of $200,000 with respect to any such cash compensation and (ii) $800,000 in total value with respect to any such equity-based compensation (including Awards and any other equity-based awards), calculating the value of any such awards based on the grant date fair value of such awards for financial reporting purposes.

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

4. ELIGIBILITY.

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

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

5. PROVISIONS RELATING TO OPTIONS AND STOCK APPRECIATION RIGHTS.

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

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

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

(c) Payment of Exercise Price for Options. The exercise price of an Option may be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by one or more of the methods of payment set forth below that are specified in the Option Agreement. The Board has the authority to grant Options that do not permit all of the following methods of payment (or that otherwise restrict the ability to utilize certain methods) and to grant Options that require the consent of the Company to utilize a particular method of payment.

(i) By cash (including electronic funds transfers), check, bank draft or money order payable to the Company;

(ii) Pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the Common Stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) By delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) If an Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however*, that the Company will accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued. Shares of Common Stock will no longer be subject to an Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations; or

(v) In any other form of legal consideration that may be acceptable to the Board and specified in the applicable Award Agreement.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Award Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such SAR, and with respect to which the Participant is exercising the SAR on such date, over (B) the aggregate strike price of the number of Common Stock equivalents with respect to which the Participant is exercising the SAR on such date. The appreciation distribution may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Award Agreement evidencing such SAR.

(e) Transferability of Options and SARs. The Board may, in its sole discretion, impose such limitations on the transferability of Options and SARs as the Board will determine. In the absence of such a determination by the Board to the contrary, the restrictions set forth in this Section 5(e) on the transferability of Options and SARs will apply. Notwithstanding the foregoing or anything in the Plan or an Award Agreement to the contrary, no Option or SAR may be transferred to any financial institution without prior stockholder approval.

(i) Restrictions on Transfer. An Option or SAR will not be transferable, except by will or by the laws of descent and distribution (and pursuant to Sections 5(e)(ii) and 5(e)(iii) below), and will be exercisable during the lifetime of the Participant only by the Participant. Subject to the foregoing paragraph, the Board may, in its sole discretion, permit transfer of the Option or SAR in a manner that is not prohibited by applicable tax and securities laws. Except as explicitly provided in the Plan, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Subject to the approval of the Board or a duly authorized Officer, an Option or SAR may be transferred pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulations Section 1.421-1(b)(2). If an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(iii) Beneficiary Designation. Subject to the approval of the Board or a duly authorized Officer, a Participant may, by delivering written notice to the Company, in a form approved by the Company (or the designated broker), designate a third party who, upon the death of the Participant, will thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, upon the death of the Participant, the executor or administrator of the Participant's estate will be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. However, the Company may prohibit designation of a beneficiary at any time, including due to any conclusion by the Company that such designation would be inconsistent with the provisions of applicable laws.

(f) Vesting. The total number of shares of Common Stock subject to an Option or SAR may vest and become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of Performance Goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to Section 2(g) and any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates (other than for Cause and other than upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date that is three months following such termination of Continuous Service (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after such termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time period, the Option or SAR (as applicable) will terminate.

(h) Extension of Termination Date. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if the exercise of an Option or SAR following the termination of a Participant's Continuous Service (other than for Cause and other than upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement. In addition, except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if the sale of any Common Stock received upon exercise of an Option or SAR following the termination of a Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date that is 12 months following such termination of Continuous Service (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after such termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time period, the Option or SAR (as applicable) will terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) a Participant dies within the period (if any) specified in the Award Agreement for exercisability after the termination of the Participant's Continuous Service (for a reason other than death), then the Participant's Option or SAR may be exercised (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance, or by a person designated to exercise the Option or SAR upon the Participant's death, but only within such period of time ending on the earlier of (i) the date that is 18 months following the date of death (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after the Participant's death, the Option or SAR (as applicable) is not exercised within the applicable time period, the Option or SAR (as applicable) will terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in the applicable Award Agreement or other individual written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service is terminated for Cause, the Participant's Option or SAR will terminate immediately upon such termination of Continuous Service, and the Participant will be prohibited from exercising his or her Option or SAR from and after the time of such termination of Continuous Service.

(l) Non-Exempt Employees. If an Option or SAR is granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, the Option or SAR will not be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR (although the Award may vest prior to such date). Consistent with the provisions of the Worker Economic Opportunity Act, (i) if such non-exempt employee dies or suffers a Disability, (ii) upon a Transaction in which such Option or SAR is not assumed, continued or substituted, (iii) upon a Change in Control, or (iv) upon the Participant's retirement (as such term may be defined in the Participant's Award Agreement, in another written agreement between the Participant and the Company or an Affiliate, or, if no such definition, in accordance with the Company's or Affiliate's then current employment policies and guidelines), the vested portion of any Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay. To the extent permitted and/or required for compliance with the Worker Economic Opportunity Act to ensure that any income derived by a non-exempt employee in connection with the exercise, vesting or issuance of any shares under any other Award will be exempt from the employee's regular rate of pay, the provisions of this Section 5(l) will apply to all Awards and are hereby incorporated by reference into such Award Agreements.

6. Provisions of Awards Other than Options and SARs.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement will be in such form and will contain such terms and conditions as the Board deems appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock underlying a Restricted Stock Award may be (i) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse, or (ii) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. The terms and conditions of separate Restricted Stock Award Agreements need not be identical; *provided*, *however*, that each Restricted Stock Award Agreement will conform to (through incorporation of the provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash (including electronic funds transfers), check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate or (C) any other form of legal consideration (including future services) that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Subject to Section 2(g), shares of Common Stock awarded under a Restricted Stock Award Agreement may be subject to forfeiture to or repurchase by the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant that have not vested as of the date of such termination under the terms of the Participant's Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under a Restricted Stock Award Agreement will be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board will determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement. Notwithstanding the foregoing or anything in the Plan or a Restricted Stock Award Agreement to the contrary, no Restricted Stock Award may be transferred to any financial institution without prior stockholder approval.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement will be in such form and will contain such terms and conditions as the Board deems appropriate. The terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical; *provided*, *however*, that each Restricted Stock Unit Award Agreement will conform to (through incorporation of the provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Subject to Section 2(g), at the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to the Restricted Stock Unit Award to a time after the vesting of the Restricted Stock Unit Award.

(v) Termination of Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates, any portion of the Participant's Restricted Stock Unit Award that has not vested as of the date of such termination will be forfeited upon such termination.

(c) Performance Stock Awards.

(i) General. A Performance Stock Award is an Award that is payable (including that may be granted, vest or be exercised) contingent upon the attainment during a Performance Period of specified Performance Goals. A Performance Stock Award may, but need not, require the Participant's completion of a specified period of Continuous Service. Subject to Section 2(g), the length of any Performance Period, the Performance Goals to be achieved during the Performance Period, and the measure of whether and to what degree such Performance Goals have been attained will be conclusively determined by the Board, in its sole discretion. In addition, to the extent permitted by applicable law and the applicable Award Agreement, the Board may determine that cash may be used in payment of Performance Stock Awards.

(ii) Board Discretion. With respect to any Performance Stock Award, the Board retains the discretion to (A) reduce or eliminate the compensation or economic benefit due upon the attainment of any Performance Goals on the basis of any considerations as the Board, in its sole discretion, may determine and (B) define the manner of calculating the Performance Criteria it selects to use for a Performance Period.

(d) Other Stock Awards. Other forms of Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (*e.g.*, options or stock appreciation rights with an exercise or strike price (per share) less than 100% of the Fair Market Value of the Common Stock on the date of grant) may be granted either alone or in addition to Awards granted under Section 5 and this Section 6. Subject to the provisions of the Plan (including, but not limited to, Sections 2(g) and 2(h)), the Board will have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. COVENANTS OF THE COMPANY.

(a) Availability of Shares. The Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy then-outstanding Awards.

(b) Securities Law Compliance. The Company will seek to obtain from each regulatory commission or agency having jurisdiction over the Plan the authority required to grant Awards and to issue and sell shares of Common Stock upon exercise of the Awards; *provided, however*, that this undertaking will not require the Company to register under the Securities Act the Plan, any Award or any Common Stock issued or issuable pursuant to any such Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Awards unless and until such authority is obtained. A Participant will not be eligible for the grant of an Award or the subsequent issuance of cash or Common Stock pursuant to the Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company will have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising an Award. Furthermore, the Company will have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of an Award or a possible period in which the Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of an Award to the holder of such Award.

8. MISCELLANEOUS.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock issued pursuant to Awards will constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Awards. Corporate action constituting a grant by the Company of an Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate or letter evidencing the Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (*e.g.*, Board consents, resolutions or minutes) documenting the corporate action constituting the grant contain terms (*e.g.*, exercise price, vesting schedule or number of shares) that are inconsistent with those in the Award Agreement or related grant documents as a result of a clerical error in the papering of the Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Award Agreement or related grant documents.

(c) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to an Award unless and until (i) such Participant has satisfied all requirements for exercise of, or the issuance of shares of Common Stock under, the Award pursuant to its terms, and (ii) the issuance of the Common Stock subject to such Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Award was granted or will affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, or (ii) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company or any Affiliate is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Award to the Participant, the Board has the right in its sole discretion to (i) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Award that is scheduled to vest or become payable after the date of such change in time commitment, and (ii) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Award that is so reduced or extended.

(f) Incentive Stock Option Limitation. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Participant during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000 (or such other limit established in the Code) or otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(g) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Award and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, will be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Award has been registered under a then currently effective registration statement under the Securities Act or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(h) Withholding Obligations. Unless prohibited by the terms of an Award Agreement, the Company may, in its sole discretion, satisfy any federal, state, local or foreign tax withholding obligation relating to an Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Award; (iii) withholding cash from an Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Award Agreement.

(i) Electronic Delivery. Any reference herein to a "written" agreement or document will include any agreement or document delivered electronically, filed publicly at www.sec.gov (or any successor website thereto) or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access).

(j) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company or an Affiliate. The Board is authorized to make deferrals of Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(k) Section 409A. Unless otherwise expressly provided for in an Award Agreement, the Plan and Award Agreements will be interpreted to the greatest extent possible in a manner that makes the Plan and the Awards granted hereunder exempt from Section 409A of the Code, and, to the extent not so exempt, in compliance with Section 409A of the Code. If the Board determines that any Award granted hereunder is not exempt from and is therefore subject to Section 409A of the Code, the Award Agreement evidencing such Award will incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code, and to the extent an Award Agreement is silent on terms necessary for compliance with Section 409A of the Code, such terms are hereby incorporated by reference into the Award Agreement. Notwithstanding anything to the contrary in this Plan (and unless the Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded, and if a Participant holding an Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount under such Award that is due because of a "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) will be issued or paid before the date that is six months and one day following the date of such Participant's "separation from service" or, if earlier, the date of the Participant's death, unless such distribution or payment may be made in a manner that complies with Section 409A of the Code, and any amounts so deferred will be paid in a lump sum on the day after such six-month period elapses, with the balance paid thereafter on the original schedule.

(l) Clawback/Recovery. All Awards granted under the Plan will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in an Award Agreement as the Board determines necessary or appropriate, including, but not limited to, a reacquisition right in respect of previously acquired shares of Common Stock or other cash or property upon the occurrence of Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a right to resign for "good reason" or "constructive termination" (or similar term) under any agreement with the Company or an Affiliate.

9. Adjustments upon Changes in Common Stock; Other Corporate Events.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a); (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c); and (iii) the class(es) and number of securities and price per share of stock subject to outstanding Awards. The Board will make such adjustments and its determination will be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, in the event of a dissolution or liquidation of the Company, all outstanding Awards (other than Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to a forfeiture condition or the Company's right of repurchase may be reacquired or repurchased by the Company notwithstanding the fact that the holder of such Award is providing Continuous Service.

(c) Transactions. In the event of a Transaction, the provisions of this Section 9(c) will apply to each outstanding Award and Prior Plan Award, in each case unless otherwise provided in the instrument evidencing the Award or Prior Plan Award (as applicable), in any other written agreement between the Company or any Affiliate and the Participant, or in any director compensation policy of the Company.

(i) Awards May Be Assumed. In the event of a Transaction, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue any or all outstanding Awards and/or Prior Plan Awards or may substitute similar stock awards for any or all outstanding Awards and/or Prior Plan Awards (including, but not limited to, awards to acquire the same consideration paid to the stockholders of the Company pursuant to the Transaction), and any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to any outstanding Awards and/or Prior Plan Awards may be assigned by the Company to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company). For clarity, in the

event of a Transaction, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may choose to assume or continue only a portion of an outstanding Award or Prior Plan Award, to substitute a similar stock award for only a portion of an outstanding Award or Prior Plan Award, or to assume or continue, or substitute similar stock awards for, the outstanding Awards and/or Prior Plan Awards held by some, but not all, Participants. The terms of any such assumption, continuation or substitution will be set by the Board.

(ii) Awards Held by Current Participants. In the event of a Transaction in which the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) does not assume or continue outstanding Awards and/or Prior Plan Awards, or substitute similar stock awards for outstanding Awards and/or Prior Plan Awards, then with respect to any such Awards and/or Prior Plan Awards that have not been assumed, continued or substituted and that are held by Participants whose Continuous Service has not terminated prior to the effective time of the Transaction (referred to as the "***Current Participants***"), the vesting (and exercisability, if applicable) of such Awards and Prior Plan Awards will be accelerated in full (and with respect to Performance Stock Awards, vesting will be deemed to be satisfied at the target level of performance) to a date prior to the effective time of the Transaction (contingent upon the closing or completion of the Transaction) as the Board will determine (or, if the Board does not determine such a date, to the date that is five days prior to the effective time of the Transaction), and such Awards and Prior Plan Awards will terminate if not exercised (if applicable) prior to the effective time of the Transaction in accordance with the exercise procedures determined by the Board, and any reacquisition or repurchase rights held by the Company with respect to such Awards and Prior Plan Awards will lapse (contingent upon the closing or completion of the Transaction).

(iii) Awards Held by Participants other than Current Participants. In the event of a Transaction in which the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) does not assume or continue outstanding Awards and/or Prior Plan Awards, or substitute similar stock awards for outstanding Awards and/or Prior Plan Awards, then with respect to any such Awards and/or Prior Plan Awards that have not been assumed, continued or substituted and that are held by Participants other than Current Participants, such Awards and Prior Plan Awards will terminate if not exercised (if applicable) prior to the effective time of the Transaction in accordance with the exercise procedures determined by the Board; *provided*, *however*, that any reacquisition or repurchase rights held by the Company with respect to such Awards and Prior Plan Awards will not terminate and may continue to be exercised notwithstanding the Transaction.

(iv) Payment for Awards in Lieu of Exercise. Notwithstanding the foregoing, in the event any outstanding Award or Prior Plan Award held by a Participant will terminate if not exercised prior to the effective time of a Transaction, the Board may provide that the Participant may not exercise such Award or Prior Plan Award but instead will receive a payment, in such form as may be determined by the Board, equal in value to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of such Award or Prior Plan Award immediately prior to the effective time of the Transaction, over (B) any exercise price payable by the Participant in connection with such exercise. For clarity, such payment may be zero if the value of such property is equal to or less than the exercise price. Payments under this provision may be delayed to the same extent that payment of consideration to the holders of the Common Stock in connection with the Transaction is delayed as a result of escrows, earn outs, holdbacks or any other contingencies.

(d) Change in Control. Unless provided otherwise in the Award Agreement for an Award or award agreement for a Prior Plan Award (as applicable), in any other written agreement or plan between the Company or any Affiliate and the Participant, or in any director compensation policy of the Company, an Award or Prior Plan Award will not be subject to additional acceleration of vesting and exercisability upon or after a Change in Control.

(e) Prior Plan Awards. For clarity, with respect to any Prior Plan Award, the terms set forth in Sections 9(c) and 9(d) will supersede any terms set forth in the applicable Prior Plan regarding the treatment of such Prior Plan Award in the event of a Corporate Transaction (as defined in the applicable Prior Plan) or Change in Control (as defined in the applicable Prior Plan).

(f) Parachute Payments. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if any payment or benefit the Participant would receive pursuant to a Change in Control from the Company or otherwise ("***Payment***") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then such Payment will be equal to the Reduced Amount. The "***Reduced Amount***" will be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in the Participant's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction will occur in the following order: (A) reduction of cash payments; (B) cancellation of accelerated vesting of equity awards other than stock options; (C) cancellation of accelerated vesting of stock options; and (D) reduction of other benefits paid to the Participant. Within any such category of payments and benefits (that is, (A), (B), (C) or (D)), a reduction will occur first with respect to amounts that are not "deferred compensation" within the meaning of Section 409A of the Code and then with respect to amounts that are. In the event that acceleration of compensation from a Participant's equity awards is to be reduced, such acceleration of vesting will be canceled, subject to the immediately preceding sentence, in the reverse order of the date of grant. The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Change in Control will perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company will appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company will bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The accounting firm engaged to make the determinations hereunder will provide its calculations, together with detailed supporting documentation, to the Participant and the Company within 15 calendar days after the date on which the Participant's right to a Payment is triggered (if requested at that time by the Participant or the Company) or such other time as reasonably requested by the Participant or the Company. Any good faith determinations of the accounting firm made hereunder will be final, binding and conclusive upon the Participant and the Company.

10. Termination or Suspension of the Plan.

(a) Termination or Suspension. The Board may suspend or terminate the Plan at any time. No Incentive Stock Option may be granted after the tenth anniversary of the earlier of (i) the Adoption Date or (ii) the date the Plan is approved by the stockholders of the Company. No Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan will not materially impair rights and obligations under any Award granted while the Plan is in effect except with the written consent of the affected Participant or as otherwise permitted in the Plan (including Section 2(b)(viii)) or an Award Agreement.

11. Effective Date of Plan.

This Plan will become effective on the Effective Date.

12. Choice of Law.

The laws of the State of Delaware will govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. Definitions. As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Adoption Date***" means April 8, 2018, which is the date the Plan was adopted by the Board.

(b) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405. The Board will have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(c) "***Appreciation Award***" means (i) a stock option or stock appreciation right granted under any of the Prior Plans or (ii) an Option or Stock Appreciation Right, in each case with respect to which the exercise or strike price is at least 100% of the Fair Market Value of the Common Stock subject to the stock option or stock appreciation right, or Option or Stock Appreciation Right, as applicable, on the date of grant.

(d) "***Award***" means an Incentive Stock Option, a Nonstatutory Stock Option, a Stock Appreciation Right, a Restricted Stock Award, a Restricted Stock Unit Award, a Performance Stock Award or any Other Stock Award.

(e) "***Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of an Award.

(f) "***Board***" means the Board of Directors of the Company.

(g) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Award after the Adoption Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards No. 123 (revised). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(h) "***Cause***" will have the meaning ascribed to such term in any written agreement between a Participant and the Company or an Affiliate defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of one or more of the following: (i) the Participant's theft, dishonesty, willful misconduct, breach of fiduciary duty for personal profit, or falsification of any Company or Affiliate documents or records; (ii) the Participant's material failure to abide by the code of conduct or other policies (including, without limitation, policies relating to confidentiality and reasonable workplace conduct) of the Company or an Affiliate; (iii) the Participant's unauthorized use, misappropriation, destruction or diversion of any tangible or intangible asset or corporate opportunity of the Company or an Affiliate (including, without limitation, the Participant's improper use or disclosure of confidential or proprietary information of the Company or an Affiliate); (iv) any intentional act by the Participant which has a material detrimental effect on the reputation or business of the Company or an Affiliate; (v) the Participant's repeated failure or inability to perform any reasonable assigned duties after written notice from the Company or an Affiliate, and a reasonable opportunity to cure, such failure or inability; (vi) any material breach by the Participant of any employment or service agreement between the Participant and the Company or an Affiliate, which breach is not cured pursuant to the terms of such agreement; or (vii) the Participant's conviction (including any plea of guilty or nolo contendere) of any criminal act involving fraud, dishonesty, misappropriation or moral turpitude, or which impairs the Participant's ability to perform his or her duties. The determination that a termination of a Participant's Continuous Service is either for Cause or without Cause will be made by the Company, in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Awards held by the Participant will have no effect upon any determination of the rights or obligations of the Company or the Participant for any other purpose.

(i) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control will not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, or (C) solely because the level of Ownership held by any Exchange Act Person (the "***Subject Person***") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control will be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction;

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; or

(iv) over a period of 12 months or less, individuals who, on the Adoption Date, are members of the Board (the "***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member will, for purposes of this Plan, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing or any other provision of this Plan, (A) the term Change in Control will not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between a Participant and the Company or an Affiliate will supersede the foregoing definition with respect to Awards and/or Prior Plan Awards (as applicable) subject to such agreement; *provided, however*, that (1) if no definition of Change in Control (or any analogous term) is set forth in such an individual written agreement, the foregoing definition will apply; and (2) no Change in Control (or any analogous term) will be deemed to occur with respect to Awards and/or Prior Plan Awards (as applicable) subject to such an individual written agreement without a requirement that the Change in Control (or any analogous term) actually occur.

If required for compliance with Section 409A of the Code, in no event will an event be deemed a Change in Control if such event is not also a "change in the ownership of" the Company, a "change in the effective control of" the Company or a "change in the ownership of a substantial portion of the assets of" the Company, each as determined under Treasury Regulations Section 1.409A-3(i)(5) (without regard to any alternative definition thereunder). The Board may, in its sole discretion and without a Participant's consent, amend the definition of "Change in Control" to conform to the definition of a "change in control event" under Section 409A of the Code and the regulations thereunder.

(j) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(k) "***Committee***" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(l) "***Common Stock***" means the common stock of the Company.

(m) "***Company***" means Dynavax Technologies Corporation, a Delaware corporation.

(n) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee or Director, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee or Director or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided, however,* that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, in its sole discretion, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an Employee of the Company to a Director will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in an Award only to such extent as may be provided in the Company's or Affiliate's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(o) "***Corporate Transaction***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) the consummation of a sale or other disposition of all or substantially all, as determined by the Board, in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) the consummation of a sale or other disposition of at least 90% of the outstanding securities of the Company;

(iii) the consummation of a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) the consummation of a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

If required for compliance with Section 409A of the Code, in no event will an event be deemed a Corporate Transaction if such event is not also a "change in the ownership of" the Company, a "change in the effective control of" the Company or a "change in the ownership of a substantial portion of the assets of" the Company, each as determined under Treasury Regulations Section 1.409A-3(i)(5) (without regard to any alternative definition thereunder). The Board may, in its sole discretion and without a Participant's consent, amend the definition of "Corporate Transaction" to conform to the definition of a "change in control event" under Section 409A of the Code and the regulations thereunder.

(p) "***Director***" means a member of the Board.

(q) "***Disability***" means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than 12 months, as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(r) "***Effective Date***" means the effective date of this Plan, which is the date of the Annual Meeting of Stockholders of the Company held in 2018, provided that this Plan is approved by the Company's stockholders at such meeting.

(s) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(t) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(u) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(v) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company, or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date, is the Owner, directly or indirectly, of securities of the Company representing more than fifty percent 50% of the combined voting power of the Company's then outstanding securities.

(w) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) Unless otherwise provided by the Board, if the Common Stock is listed on any established stock exchange or traded on any established market, then the Fair Market Value of a share of Common Stock will be the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value of a share of Common Stock will be the closing sales price for such stock on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, the Fair Market Value of a share of Common Stock will be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(x) "***Full Value Award***" means (i) a stock award granted under any of the Prior Plans or (ii) an Award, in each case that is not an Appreciation Award.

(y) "***Incentive Stock Option***" means an option granted pursuant to Section 5 that is intended to be, and that qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(z) "***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K, or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(aa) "***Nonstatutory Stock Option***" means an option granted pursuant to Section 5 that does not qualify as an Incentive Stock Option.

(bb) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(cc) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(dd) "***Option Agreement***" means a written agreement between the Company and a holder of an Option evidencing the terms and conditions of an Option grant. Each Option Agreement will be subject to the terms and conditions of the Plan.

(ee) "***Other Stock Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 6(d).

(ff) "***Other Stock Award Agreement***" means a written agreement between the Company and a holder of an Other Stock Award evidencing the terms and conditions of an Other Stock Award grant. Each Other Stock Award Agreement will be subject to the terms and conditions of the Plan.

(gg) "***Own,***" "***Owned,***" "***Owner,***" "***Ownership***" A person or Entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(hh) "***Participant***" means (i) with respect to any Award, a person to whom such Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Award, and (ii) with respect to any Prior Plan Award, a person to whom such Prior Plan Award is granted pursuant to any Prior Plan or, if applicable, such other person who holds an outstanding Prior Plan Award.

(ii) "***Performance Criteria***" means the one or more criteria that the Board will select for purposes of establishing the Performance Goals for a Performance Period. The Performance Criteria that will be used to establish such Performance Goals may be based on any one of, or combination of, the following, as determined by the Board: (i) earnings (including earnings per share and net earnings); (ii) earnings before interest, taxes and depreciation; (iii) earnings before interest, taxes, depreciation and amortization (EBITDA); (iv) total stockholder return; (v) return on equity or average stockholder's equity; (vi) return on assets, investment, or capital employed; (vii) stock price or stock price performance; (viii) margin (including gross margin); (ix) net income (before or after taxes); (x) operating income; (xi) operating income after taxes; (xii) pre-tax profit; (xiii) operating cash flow; (xiv) sales or revenue targets; (xv) increases in revenue or product revenue; (xvi) expenses and cost reduction goals; (xvii) improvement in or attainment of working capital levels; (xviii) economic value added (or an equivalent metric); (xix) market share; (xx) cash flow; (xxi) cash flow per share; (xxii) share price performance; (xxiii) debt reduction; (xxiv) implementation or completion of projects or processes; (xxv) customer satisfaction; (xxvi) stockholders' equity; (xxvii) capital expenditures; (xxviii) debt levels; (xxix)

operating profit or net operating profit; (xxx) workforce diversity; (xxxi) growth of net income or operating income; (xxxii) billings; (xxxiii) submission to, or approval by, a regulatory body (including but not limited to the U.S. Food and Drug Administration) of an applicable filing for a product candidate or other product development milestones; (xxxiv) acquisitions, divestitures, joint ventures, strategic alliances, licenses or collaborations; (xxxv) spin-offs, split-ups, reorganizations, recapitalizations, restructurings, financings (debt or equity) or refinancings; (xxxvi) manufacturing or process development, clinical trial, regulatory, intellectual property, compliance or research objectives; and (xxxvii) any other measures of performance selected by the Board. Partial achievement of the specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the applicable Award Agreement.

(jj) "***Performance Goals***" means, for a Performance Period, the one or more goals established by the Board for the Performance Period based upon the Performance Criteria. Performance Goals may be based on a Company-wide basis, with respect to one or more business units, divisions, Affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. The Board is authorized to make appropriate adjustments in the method of calculating the attainment of Performance Goals for a Performance Period as follows: (i) to exclude restructuring and/or other nonrecurring charges; (ii) to exclude exchange rate effects, as applicable, for non-U.S. dollar denominated Performance Goals; (iii) to exclude the effects of changes to generally accepted accounting principles; (iv) to exclude the effects of any statutory adjustments to corporate tax rates; (v) to exclude the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (vi) to exclude the dilutive effects of acquisitions or joint ventures; (vii) to assume that any business divested by the Company achieved performance objectives at targeted levels during the balance of a Performance Period following such divestiture; (viii) to exclude the effect of any change in the outstanding shares of common stock of the Company by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (ix) to exclude the effects of stock based compensation and/or the award of an annual cash incentive under the Company's Annual Incentive Program; (x) to exclude the effect of any other unusual, non-recurring gain or loss or other extraordinary item; and (xi) to make other appropriate adjustments selected by the Board.

(kk) "***Performance Period***" means the period of time selected by the Board over which the attainment of one or more Performance Goals will be measured for the purpose of determining a Participant's right to and the payment of a Performance Stock Award. Performance Periods may be of varying and overlapping duration, at the sole discretion of the Board.

(ll) "***Performance Stock Award***" means an Award granted under the terms and conditions of Section 6(c).

(mm) "***Plan***" means this Dynavax Technologies Corporation 2018 Equity Incentive Plan.

(nn) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(oo) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(pp) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(qq) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement will be subject to the terms and conditions of the Plan.

(rr) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(ss) "***Rule 405***" means Rule 405 promulgated under the Securities Act.

(tt) "***Securities Act***" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

(uu) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(vv) "***Stock Appreciation Right Agreement***" or "***SAR Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement will be subject to the terms and conditions of the Plan.

(ww) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(xx) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

(yy) "***Transaction***" means a Corporate Transaction or a Change in Control.

DYNAVAX TECHNOLOGIES CORPORATION

AMENDED AND RESTATED MANAGEMENT CONTINUITY AND SEVERANCE AGREEMENT

This Amended and Restated Management Continuity and Severance Agreement (the "***Agreement***") is dated as of [_____, 2019], by and between [_____] ("***Employee***") and Dynavax Technologies Corporation, a Delaware corporation (the "***Company***").

RECITALS

A. It is expected that another company may from time to time consider the possibility of acquiring the Company or that a Change of Control (as defined below) may otherwise occur, with or without the approval of the Company's Board of Directors (the "***Board***"). The Board recognizes that such consideration can be a distraction to Employee and can cause Employee to consider alternative employment opportunities. The Board has determined that it is in the best interests of the Company to assure that the Company will have the continued dedication and objectivity of Employee, notwithstanding the possibility, threat, or occurrence of a Change of Control.

B. The Board believes it is in the best interests of the Company to retain Employee and provide incentives to Employee to continue in the service of the Company.

C. The Board further believes that it is imperative to provide Employee with certain benefits upon a qualifying termination of Employee's employment with the Company, which benefits are intended to provide Employee with encouragement to remain with the Company, notwithstanding the possibility of a Change of Control or an employment termination.

D. To accomplish the foregoing objectives, the Board has directed the Company, upon execution of this Agreement by Employee, to agree to the terms provided in this Agreement.

E. Employee and the Company previously entered into a Management Continuity and Severance Agreement dated as of [_____, 201_] (the "***Original Agreement***"), which was amended and superseded by the Amended and Restated Management Continuity and Severance Agreement dated as of [_____, 201_] by and between Employee and the Company (the "***Prior Agreement***"). Employee and the Company acknowledge and agree that this Agreement amends and supersedes the Prior Agreement, which will be of no further force and effect.

Now therefore, in consideration of the mutual promises, covenants, and agreements contained herein, and in consideration of the continuing employment of Employee by the Company, the parties hereto agree as follows:

1. **<u>At-Will Employment</u>**. The Company and Employee acknowledge that Employee's employment with the Company is and shall continue to be at-will, as defined under applicable law, and that Employee's employment with the Company may be terminated by either party at any time for any or no reason. If Employee's employment with the Company terminates for any reason, Employee shall not be entitled to any payments, benefits, damages, award, or compensation other than as provided in this Agreement, and as may otherwise be available in accordance with the terms of the Company's established employee plans and written policies at the time of such termination. The terms of this Agreement shall terminate upon the date that all obligations of the parties hereunder have been satisfied.

2. **<u>Involuntary Termination</u>**. Subject to Section 5, if Employee's employment with the Company terminates due to an Involuntary Termination and Employee has satisfied the Release requirement set forth in Section 4, then Employee shall be entitled to receive the benefits set forth in Sections 2(a), 2(b), 2(c) and 2(d) below, as applicable, subject to any required payroll deductions and tax withholdings.

(a) **<u>Cash Severance Benefit</u>**. Employee will be entitled to receive a cash payment equal to the following amount, as applicable (the "***Cash Severance Benefit***"), in a lump sum within sixty (60) days following such Involuntary Termination:

(i) if such Involuntary Termination is a Non-Change of Control Termination, the Cash Severance Benefit will be equal to twelve (12) months of Employee's annual base salary (as in effect on the date of such termination or, if such termination is due to Good Reason, as defined herein, then as in effect on the date immediately prior to the initial existence of such Good Reason); and

(ii) if such Involuntary Termination is a Change of Control Termination, the Cash Severance Benefit will be equal to the sum of (x) fifteen (15) months of Employee's annual base salary (as in effect on the date of such termination or, if such termination is due to Good Reason, as defined herein, then as in effect on the date immediately prior to the initial existence of such Good Reason) and (y) 125% of Employee's annual target bonus for the year of such termination under the Company's management incentive program or other similar bonus program.

(b) **<u>COBRA Severance Benefit and Special Severance Benefit</u>**. The Company, in its sole discretion, will either: (x) pay, on Employee's behalf, on a monthly basis, the total amount of monthly premiums required to continue Employee's coverage (including coverage for Employee's eligible dependents, if any) under the Company's health, dental and vision insurance plans (as in effect on the date of such termination) pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("***COBRA***") ("***COBRA Premiums***") for the following number of months, as applicable (the "***COBRA Severance Benefit***"); or (y) pay directly to Employee an amount equal to the COBRA Premiums for the following number of months, as applicable (the "***Special Severance Benefit***"):

(i) if such Involuntary Termination is a Non-Change of Control Termination, the COBRA Severance Benefit (if any) will be provided for a period of up to twelve (12) months following such termination and the Special Severance Benefit (if any) will be payable for up to twelve (12) months following such termination, provided that the total combined number of months covered by the COBRA Severance Benefit and the Special Severance Benefit will be equal to (and may not exceed) twelve (12) months; and

(ii) if such Involuntary Termination is a Change of Control Termination, the COBRA Severance Benefit (if any) will be provided for a period of up to fifteen (15) months following such termination and the Special Severance Benefit (if any) will be payable for up to fifteen (15) months following such termination, provided that the total combined number of months covered by the COBRA Severance Benefit and the Special Severance Benefit will be equal to (and may not exceed) fifteen (15) months.

Payments of the Special Severance Benefit (if any) will be made to Employee on a monthly basis as follows: (i) if the Company does not provide the COBRA Severance Benefit for any month during the sixty (60)-day period following Employee's Involuntary Termination, the first payment of the Special Severance Benefit will be made to Employee within such sixty (60)-day period and will be equal to the number of such months multiplied by the COBRA Premiums; and (ii) following such sixty (60)-day period, if the Company does not provide the COBRA Severance Benefit for any remaining month during the applicable COBRA Severance Benefit period, a payment of the Special Severance Benefit will be made to Employee on the last business day of such month and will be equal to the COBRA Premiums.

Notwithstanding the foregoing, the Company will provide Employee with the Special Severance Benefit in lieu of the COBRA Severance Benefit if either (i) Employee is not eligible to continue his or her coverage under the Company's health, dental and vision insurance plans pursuant to COBRA or Employee fails to make an election to continue such coverage pursuant to COBRA within the time period prescribed under COBRA or (ii) the Company determines, at any time and in its sole discretion, that its payment of COBRA Premiums pursuant to the COBRA Severance Benefit would result in a violation of applicable law (including, without limitation, Section 2716 of the Public Health Service Act).

(c) **Equity Vesting Benefit**. Unless specifically provided otherwise in the applicable equity award agreement, in the event of an Involuntary Termination that is a Change of Control Termination, all equity awards granted by the Company to Employee will become fully vested, effective as of the date of such termination, to the extent that such awards are outstanding and unvested as of the date of such termination (the "***Equity Vesting Benefit***"). No Equity Vesting Benefit will be provided in the event of an Involuntary Termination that is a Non-Change of Control Termination. For clarity, the Equity Vesting Benefit will also apply to any stock award granted in substitution for an equity award granted by the Company to Employee by a surviving or acquiring entity in a Change of Control.

(d) **Option Extended Exercise Period Benefit**. In the event of an Involuntary Termination, Employee will be permitted to exercise all stock options granted by the Company to Employee, to the extent that such stock options are outstanding and vested as of the date of such termination (including any stock options that become vested pursuant to Section 2(c) above), for a period ending on the following (the "***Option Extended Exercise Period Benefit***"):

(i) if such Involuntary Termination is a Non-Change of Control Termination, the Option Extended Exercise Period Benefit will end on the earlier of (i) one (1) year following such termination (or, if Employee is entitled to exercise such stock option until a later date in accordance with the terms of the stock option agreement, such later date) and (ii) the end of the original full term of such stock option, as specified in the stock option agreement; and

(ii) if (x) such Involuntary Termination is a Change of Control Termination and (y) such stock option is assumed or continued, or substituted with a similar stock award, in connection with the Change of Control applicable to such Change of Control Termination, the Option Extended Exercise Period Benefit will end on the earlier of (i) three (3) years following such termination (or, if Employee is entitled to exercise such stock option until a later date in accordance with the terms of the stock option agreement, such later date) and (ii) the end of the original full term of such stock option, as specified in the stock option agreement.

For clarity, the Option Extended Exercise Period Benefit will also apply to any stock award granted in substitution for an equity award granted by the Company to Employee by a surviving or acquiring entity in a Change of Control.

(e) **No Duplication of Benefits**. For the avoidance of doubt, in no event will Employee be entitled to receive any benefits under Section 2 for both a Non-Change of Control Termination and a Change of Control Termination.

(f) **Modification of Stock Options**. Employee acknowledges that Sections 2(c) and 2(d) above, if applicable, amend the terms of Employee's currently outstanding stock options granted by the Company to Employee, and as a result, some or all of such stock options may cease, as of the date of this Agreement and/or as of the date of Employee's termination of employment with the Company, to be treated as incentive stock options, in accordance with applicable law.

3. **Other Terminations**. If Employee's employment with the Company terminates due to Cause, Employee's death or Disability, or any other reason (other than due to an Involuntary Termination), then Employee shall not be entitled to receive any benefits under Section 2. The Company, in its sole discretion, will determine the reason for Employee's termination of employment (including, but not limited to, whether such termination is due to Cause or Employee's Disability).

4. **Release**. In order to be eligible to receive any benefits under Section 2, Employee must (i) execute and return the general waiver and release provided by the Company, the terms of which will comply with applicable law and be determined by the Company, in its sole discretion (the "***Release***"), to the Company within the applicable time period set forth therein and (ii) not revoke the Release within the revocation period (if any) set forth therein; *provided*, *however*, that in no event may the applicable time period or revocation period extend beyond sixty (60) days following Employee's date of termination.

5. **Section 409A**. If any benefit provided under this Agreement is subject to Section 409A of the Internal Revenue Code of 1986, as amended (the "***Code***"), and the regulations and other guidance thereunder or any state law of similar effect ("***Section 409A***"), and such benefit otherwise is payable in connection with Employee's termination of employment with the Company, then such benefit will not be payable unless such termination constitutes a "separation from service" (as such term is defined in Treasury Regulations Section 1.409A-1(h) without regard to any alternative definition thereunder) ("***Separation from Service***"). It is intended that (i) each installment of any benefit payable under this Agreement be regarded as a separate

"payment" for purposes of Treasury Regulations Section 1.409A-2(b)(2)(i), and (ii) all payments of any such benefits satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9). However, if the Company determines that any benefit payable under this Agreement constitutes "deferred compensation" under Section 409A and Employee is a "specified employee" (as such term is defined in Section 409A(a)(2)(B)(i) of the Code) as of the date of Employee's Separation from Service, then, solely to the extent necessary to avoid the imposition of the adverse personal tax consequences under Section 409A, (a) the commencement of such benefit payments will be delayed until the earlier of (1) the date that is six (6) months and one (1) day after such Separation from Service and (2) the date of Employee's death (such applicable date, the "***Delayed Initial Payment Date***"), and (b) the Company will (1) pay Employee a lump sum amount equal to the sum of any benefit payments that Employee otherwise would have received through the Delayed Initial Payment Date if the commencement of such benefit payments had not been delayed pursuant to this paragraph and (2) commence paying the balance, if any, of such benefit in accordance with the applicable payment schedule set forth in this Agreement. In addition, if the Company determines that any benefit payable under this Agreement constitutes "deferred compensation" under Section 409A and Employee's Separation from Service occurs at a time during the calendar year when the Release could become effective in the calendar year following the calendar year in which such Separation from Service occurs, then for purposes of such benefit, the Release will not be deemed effective any earlier than the latest permitted effective date set forth therein (which date, in all cases, will be in the subsequent calendar year).

6. **Definition of Terms**. The following terms referred to in this Agreement shall have the following meanings:

(a) **Cause**. "Cause" shall mean the occurrence of any of the following events: (i) Employee's theft, dishonesty, willful misconduct, breach of fiduciary duty for personal profit, or falsification of any Company or affiliate documents or records; (ii) Employee's material failure to abide by the code of conduct or other policies (including, without limitation, policies relating to confidentiality and reasonable workplace conduct) of the Company or an affiliate; (iii) Employee's unauthorized use, misappropriation, destruction or diversion of any tangible or intangible asset or corporate opportunity of the Company or an affiliate (including, without limitation, Employee's improper use or disclosure of confidential or proprietary information of the Company or an affiliate); (iv) any intentional act by Employee which has a material detrimental effect on the reputation or business of the Company or an affiliate; (v) Employee's repeated failure or inability to perform any reasonable assigned duties after written notice from the Company or an affiliate, and a reasonable opportunity to cure, such failure or inability; (vi) any material breach by Employee of any employment or service agreement between Employee and the Company or an affiliate, which breach is not cured pursuant to the terms of such agreement; or (vii) Employee's conviction (including any plea of guilty or nolo contendere) of any criminal act involving fraud, dishonesty, misappropriation or moral turpitude, or which impairs Employee's ability to perform his or her duties. Any determination by the Company that the employment of Employee was terminated with or without Cause for the purposes of this Agreement shall have no effect upon any determination of the rights or obligations of the Company or Employee for any other purpose.

(b) **Change of Control**. A "Change of Control" shall mean the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change of Control shall not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, or (C) solely because the level of Ownership held by any Exchange Act Person (the "***Subject Person***") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change of Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change of Control shall be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than fifty percent (50%) of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than fifty percent (50%) of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction;

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than fifty percent (50%) of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; or

(iv) over a period of twelve (12) months or less, individuals who, on the date of the Original Agreement, are members of the Board (the "***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall, for purposes of this Agreement, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing or any other provision of this Agreement, the term Change of Control shall not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company.

(c) **Change of Control Termination**. A "Change of Control Termination" shall mean an Involuntary Termination that occurs upon or within twenty-four (24) months following a Change of Control.

(d) **Disability**. "Disability" shall mean the inability of Employee to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than twelve (12) months, as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and shall be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(e) **Entity**. An "Entity" shall mean a corporation, partnership, limited liability company or other entity.

(f) **Exchange Act Person**. An "Exchange Act Person" shall mean any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder (the "***Exchange Act***")), except that "Exchange Act Person" shall not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the date of the Original Agreement, is the Owner, directly or indirectly, of securities of the Company representing more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities.

(g) **Good Reason**. "Good Reason" shall mean any of the following conditions arising without the consent of Employee: (i) a material reduction in Employee's base compensation (other than in connection with a general reduction in base compensation for most officers of the Company or the successor corporation); (ii) a material reduction in Employee's job duties, responsibilities, and requirements inconsistent with Employee's prior job duties, responsibilities, and requirements, or (iii) a relocation of Employee's principal place of employment that increases Employee's one-way commute by more than thirty-five (35) miles. Notwithstanding anything in this Agreement to the contrary, in order to qualify as a resignation for Good Reason, (x) Employee must provide written notice to the Company of the existence of any of the foregoing conditions that forms the basis for such resignation within ninety (90) days following its initial existence, (y) the Company must fail to remedy such condition within thirty (30) days following such notice, and (z) Employee's termination of employment with the Company must occur within sixty (60) days following the Company's failure to remedy such condition (and in no event later than one hundred eighty (180) days following the initial existence of such condition).

(h) **Involuntary Termination**. An "Involuntary Termination" shall mean a termination of Employee's employment with the Company as a result of either: (i) a termination by the Company without Cause and other than as a result of Employee's death or Disability; or (ii) Employee's resignation for Good Reason.

(i) **Non-Change of Control Termination**. A "Non-Change of Control Termination" shall mean any Involuntary Termination other than a Change of Control Termination.

(j) **Own, Owned, Owner and Ownership**. A person or Entity shall be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(k) **Subsidiary**. A "Subsidiary" shall mean with respect to the Company, (i) any corporation of which more than fifty percent (50%) of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation shall have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than fifty percent (50%).

7. **Conflicts**. Employee represents that Employee's performance of all the terms of this Agreement will not breach any other agreement to which Employee is a party. Employee has not entered, and will not during the term of this Agreement enter, into any oral or written agreement in conflict with any of the provisions of this Agreement.

8. **Successors**. Any successor to the Company (whether direct or indirect and whether by purchase, lease, merger, consolidation, liquidation, or otherwise) shall assume the obligations under this Agreement and agree expressly to perform the obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. The terms of this Agreement and all of Employee's rights hereunder and thereunder shall inure to the benefit of, and be enforceable by, Employee's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees, and legatees.

9. **Notice**. Notices and all other communications contemplated by this Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or when mailed by U.S. registered or certified mail, return receipt requested and postage prepaid. Mailed notices to Employee shall be addressed to Employee at the home address that Employee most recently communicated to the Company in writing. In the case of the Company, mailed notices shall be addressed to its corporate headquarters, and all notices shall be directed to the attention of its Secretary.

10. Parachute Payments.

(a) If any payment or benefit Employee will or may receive from the Company or otherwise (a "***280G Payment***") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then any such 280G Payment pursuant to this Agreement (a "***Payment***") shall be equal to the Reduced Amount. The "***Reduced Amount***" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (*i.e.*, the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Employee's receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "***Reduction Method***") that results in the greatest economic benefit for Employee. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "***Pro Rata Reduction Method***").

(b) Notwithstanding any provision of Section 10(a) to the contrary, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A that would not otherwise be subject to taxes pursuant to Section 409A, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for Employee as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (*e.g.*, being terminated without Cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A shall be reduced (or eliminated) before Payments that are not "deferred compensation" within the meaning of Section 409A.

(c) The independent registered public accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the event described in Section 280G(b)(2)(A)(i) of the Code shall perform the foregoing calculations. If the independent registered public accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting such event, the Company shall appoint a nationally recognized independent registered public accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such independent registered public accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the independent registered public accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to the Company and Employee within thirty (30) calendar days after the date on which Employee's right to a 280G Payment becomes reasonably likely to occur (if requested at that time by the Company or Employee) or such other time as requested by the Company or Employee.

(d) If Employee receives a Payment for which the Reduced Amount was determined pursuant to clause (x) of Section 10(a) and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, Employee agrees to promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of Section 10(a)) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) of Section 10(a), Employee shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

11. Miscellaneous Provisions.

(a) **No Duty to Mitigate**. Employee shall not be required to mitigate the amount of any payment contemplated by this Agreement (whether by seeking new employment or in any other manner), nor shall any such payment be reduced by any earnings that Employee may receive from any other source.

(b) **Modification and Waiver**. No provision of this Agreement shall be modified, amended, waived, or discharged unless the modification, amendment, waiver, or discharge is agreed to in writing and signed by Employee and by the Company. No waiver by either party of any breach of, or of compliance with, any condition or provision of this Agreement by the other party shall be considered a waiver of any other condition or provision or of the same condition or provision at another time.

(c) **Whole Agreement; Other Agreements**. No agreements, representations, or understandings (whether oral or written and whether expressed or implied) which are not expressly set forth in this Agreement have been made or entered into by either party with respect to the subject matter hereof. This Agreement supersedes the Prior Agreement and any agreement of the same title and concerning similar subject matter dated prior to the date of this Agreement, and by execution of this Agreement both parties agree that the Prior Agreement and any such predecessor agreement shall be deemed null and void. Any equity awards granted by the Company to Employee prior to, on or after the date of this Agreement will be governed in accordance with their terms, except to the extent specifically modified by this Agreement. For the avoidance of doubt, nothing in this Agreement supersedes or replaces the terms of the Proprietary Information and Inventions Assignment Agreement between the Company and Employee, the terms of which remain in full force and effect.

(d) **Choice of Law**. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of California without reference to conflict of laws provisions.

(e) **Severability**. If any term or provision of this Agreement or the application thereof to any circumstance shall, in any jurisdiction and to any extent, be invalid or unenforceable, such term or provision shall be ineffective as to such jurisdiction to the extent of such invalidity or unenforceability without invalidating or rendering unenforceable the remaining terms and provisions of this Agreement or the application of such terms and provisions to circumstances other than those as to which it is held invalid or unenforceable, and a suitable and equitable term or provision shall be substituted therefore to carry out, insofar as may be valid and enforceable, the intent and purpose of the invalid or unenforceable term or provision.

(f) **Arbitration**. Any dispute or controversy arising under or in connection with this Agreement may be settled at the option of either party by binding arbitration in the County of Alameda, California, in accordance with the rules of the American Arbitration Association then in effect before a single arbitrator. The judgment may be entered on the arbitrator's award in any court having jurisdiction. Punitive damages shall not be awarded.

(g) **Legal Fees and Expenses**. The parties shall each bear their own expenses, legal fees, and other fees incurred in connection with this Agreement. This means the Company pays its own legal fees in connection with this Agreement and Employee is responsible for Employee's own legal fees in connection with this Agreement. However, the arbitrator may award legal fees and expenses in connection with any arbitration as deemed appropriate.

(h) **No Assignment of Benefits**. The rights of any person to payments or benefits under this Agreement shall not be made subject to option or assignment, either by voluntary or involuntary assignment or by operation of law, including (without limitation) bankruptcy, garnishment, attachment, or other creditor's process, and any action in violation of this Section 11(h) shall be void.

(i) **Employment Taxes**. All payments made pursuant to this Agreement will be subject to withholding of applicable income and employment taxes.

(j) **Assignment by Company**. The Company may assign its rights under this Agreement to an affiliate, and an affiliate may assign its rights under this Agreement to another affiliate of the Company or to the Company; *provided*, *however*, that such assignee is the employer of Employee. In the case of any such assignment, the term "Company" when used in a section of this Agreement shall mean the corporation that actually employs Employee except that the term "Company" shall continue to mean Dynavax Technologies Corporation with regard to the definition of a Change of Control.

(k) **Counterparts**. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

[SIGNATURE PAGE FOLLOWS]

The parties have executed this Agreement on the date first written above.

DYNAVAX TECHNOLOGIES CORPORATION

By:

Title: [_____]

Signature: _____

Address:

DYNAVAX
INNOVATING IMMUNOLOGY
2929 Seventh Street, Suite 100
Berkeley, California 94710

HAND DELIVERED

May 30, 2019

David Novack
39 Yorkshire Drive
Oakland, CA 94618

Re: Title Change

Dear David,

This letter confirms your new title of Senior Vice President, Operations effective May 20, 2019.

Best regards,

/s/ Peggy Phillips

Peggy Phillips
Chair, Compensation Committee of the Board of Directors

CC: Personnel file and Payroll

DYNAVAX
INNOVATING IMMUNOLOGY
2929 Seventh Street, Suite 100
Berkeley, California 94710

HAND DELIVERED

May 30, 2019

David Novack
39 Yorkshire Drive
Oakland, CA 94618

Re: Monthly Stipend for Interim Appointment to The Shared Office of The President

Dear David,

This letter confirms the monthly stipend of $6,500 associated with your interim appointment to the shared Office of the President effective May 21, 2019. The monthly stipend will be paid on the last payroll cycle of each month for each month (including partial months) that you serve in this interim capacity. In addition, the monthly stipend earnings will be included as income in the calculation of your 2019 Annual Bonus award.

On behalf of the Board of Directors, I want to personally thank you for accepting this interim leadership role during this period of transition for Dynavax.

Best regards,

/s/ Peggy Phillips

Peggy Phillips
Chair, Compensation Committee of the Board of Directors

CC: Personnel file and Payroll

DYNAVAX
INNOVATING IMMUNOLOGY
2929 Seventh Street, Suite 100
Berkeley, California 94710

HAND DELIVERED

May 30, 2019

Ryan Spencer
172 Gordon Way
Martinez, CA 94553

Re: Promotion

Dear Ryan,

On behalf of the Board of Directors, I am pleased to confirm your promotion and associated change in compensation effective May 16, 2019.

New Title: Senior Vice President, Commercial
New Annual Base Salary: $360,000
New Bonus Target: 50%

Note: Your 2019 Annual Bonus (payable in Q1 2020) will be prorated as follows:

- The period from January 1, 2019 – May 1, 2019 will be calculated on your former annual base salary of $296,010 and your former bonus target of 40%
- The period from May 16, 2019 – December 31, 2019 will be calculated at your new base salary of $360,000 and your new bonus target of 50%

Congratulations on this well-deserved promotion!

Best regards,

/s/ Peggy Phillips

Peggy Phillips
Chair, Compensation Committee of the Board of Directors

CC: Personnel file and Payroll

DYNAVAX
INNOVATING IMMUNOLOGY
2929 Seventh Street, Suite 100
Berkeley, California 94710

HAND DELIVERED

May 30, 2019

Ryan Spencer
172 Gordon Way
Martinez, CA 94553

Re: Monthly Stipend for Interim Appointment to The Shared Office of The President

Dear Ryan,

This letter confirms the monthly stipend of $6,500 associated with your interim appointment to the shared Office of the President effective May 21, 2019. The monthly stipend will be paid on the last payroll cycle of each month for each month (including partial months) that you serve in this interim capacity. In addition, the monthly stipend earnings will be included as income in the calculation of your 2019 Annual Bonus award.

On behalf of the Board of Directors, I want to personally thank you for accepting this interim leadership role during this period of transition for Dynavax.

Best regards,

/s/ Peggy Phillips

Peggy Phillips
Chair, Compensation Committee of the Board of Directors

CC: Personnel file and Payroll

Exhibit 31.1

Rule 13a-14(a) Certification of Co-Principal Executive Officer

CERTIFICATIONS

I, David Novack, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Dynavax Technologies Corporation (the "registrant");

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

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

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

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

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ DAVID NOVACK

David Novack
Co-President, Senior Vice President, Operations
(Co-Principal Executive Officer)

Date: August 7, 2019

Exhibit 31.2

Rule 13a-14(a) Certification of Co-Principal Executive Officer

CERTIFICATIONS

I, Ryan Spencer, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Dynavax Technologies Corporation (the "registrant");

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

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

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

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

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ RYAN SPENCER

Ryan Spencer
Co-President, Senior Vice President, Commercial
(Co-Principal Executive Officer)

Date: August 7, 2019

Exhibit 31.3

Rule 13a-14(a) Certification of Principal Financial Officer

CERTIFICATIONS

I, Michael Ostrach, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Dynavax Technologies Corporation (the "registrant");

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

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

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

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

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ MICHAEL OSTRACH

Michael Ostrach
Chief Financial Officer
(Principal Financial Officer)

Date: August 7, 2019

Exhibit 32.1

Certification Pursuant to Section 1350 of Chapter 63
of Title 18 of the United States Code

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), I, David Novack, Co-President and Senior Vice President, Operations of Dynavax Technologies Corporation (the "Company"), hereby certify that, to the best of my knowledge:

(i) The Company's Quarterly Report on Form 10-Q for the period ended June 30, 2019 (the "Periodic Report"), to which this Certificate is attached as Exhibit 32.1, fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

(ii) The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

In Witness Whereof, the undersigned has set his hand hereto as of the 7th day of August, 2019.

By: /s/ DAVID NOVACK

David Novack
Co-President, Senior Vice President, Operations
(Co-Principal Executive Officer)

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Dynavax Technologies Corporation under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.

Exhibit 32.2

Certification Pursuant to Section 1350 of Chapter 63
of Title 18 of the United States Code

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), I, Ryan Spencer, Co-President and Senior Vice President, Commercial of Dynavax Technologies Corporation (the "Company"), hereby certify that, to the best of my knowledge:

(i) The Company's Quarterly Report on Form 10-Q for the period ended June 30, 2019 (the "Periodic Report"), to which this Certificate is attached as Exhibit 32.2, fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

(ii) The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

In Witness Whereof, the undersigned has set his hand hereto as of the 7th day of August, 2019.

By: /s/ RYAN SPENCER

Ryan Spencer
Co-President, Senior Vice President, Commercial
(Co-Principal Executive Officer)

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Dynavax Technologies Corporation under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.

Exhibit 32.3

Certification Pursuant to Section 1350 of Chapter 63
of Title 18 of the United States Code

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), I, Michael Ostrach, Chief Financial Officer of Dynavax Technologies Corporation (the "Company"), hereby certify that, to the best of my knowledge:

(i) The Company's Quarterly Report on Form 10-Q for the period ended June 30, 2019 (the "Periodic Report"), to which this Certificate is attached as Exhibit 32.3, fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

(ii) The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

In Witness Whereof, the undersigned has set his hand hereto as of the 7th day of August, 2019.

By: /s/ MICHAEL OSTRACH

Michael Ostrach
Chief Financial Officer
(Principal Financial Officer)

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Dynavax Technologies Corporation under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.