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 March 31, 2024

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 720
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	Nasdaq Global Select Market

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§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 May 6, 2024, the registrant had outstanding 130,891,710 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 sales of HEPLISAV-B®, our ability to successfully commercialize HEPLISAV-B, CpG 1018 adjuvant or any future product, our anticipated market opportunity and level of sales of HEPLISAV-B and CpG 1018 adjuvant, our ability to manufacture sufficient supply of HEPLISAV-B to meet future demand, our business, collaboration and regulatory strategy, our ability to successfully support the development, manufacture and commercialization of other vaccines containing our CpG 1018 adjuvant, including any current or potential vaccine or vaccine candidate that stems from any of our collaborations, our ability to manufacture sufficient supply of CpG 1018 adjuvant to meet potential future demand in connection with new vaccines, our ability to advance our other product candidates, such as our shingles, Tdap and plague programs, and to otherwise develop and expand our clinical research pipeline, meet regulatory requirements, including post-marketing obligations and commitments, uncertainty regarding our capital needs and future operating results and profitability, anticipated sources of funds, liquidity and cash needs (including our ability to collect on accounts receivables), anticipated future revenue, as well as our plans, objectives, strategies, expectations and intentions for our business. 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 after the date they are made.

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 its subsidiaries.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

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

	March 31, 2024 (unaudited)	December 31, 2023 (Note 1)
Assets		
Current assets:		
Cash and cash equivalents	$ 132,033	$ 150,279
Marketable securities available-for-sale	591,505	592,023
Accounts receivables, net of allowance for doubtful accounts of $12,313 at March 31, 2024 and December 31, 2023, respectively	44,161	40,607
Other receivables	1,993	3,926
Inventories	61,806	53,290
Prepaid expenses and other current assets	19,788	18,995
Total current assets	851,286	859,120
Property and equipment, net	36,413	37,297
Operating lease right-of-use assets	23,392	24,287
Goodwill	2,022	2,067
Other assets	73,452	74,325
Total assets	$ 986,565	$ 997,096
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,431	$ 5,245
Accrued research and development	3,137	2,982
Accrued liabilities	45,841	49,448
Other current liabilities	4,593	4,520
Total current liabilities	56,002	62,195
Convertible Notes, net of debt discount of $2,516 and $2,802 at March 31, 2024 and December 31, 2023, respectively (Note 7)	222,984	222,698
Long-term portion of lease liabilities	28,559	29,720
CEPI accrual long-term (Note 6)	60,337	60,337
Other long-term liabilities	203	74
Total liabilities	368,085	375,024
Commitments and contingencies (Note 5)		
Stockholders' equity:		
Preferred stock: $0.001 par value, 5,000 shares authorized at March 31, 2024 and December 31, 2023; zero shares outstanding at March 31, 2024 and December 31, 2023	-	-
Common stock: $0.001 par value, 278,000 shares authorized at March 31, 2024 and December 31, 2023; 130,859 shares and 129,530 shares issued and outstanding at March 31, 2024 and December 31, 2023, respectively	131	130
Additional paid-in capital	1,562,027	1,554,634
Accumulated other comprehensive loss	(4,373)	(2,108)
Accumulated deficit	(939,305)	(930,584)
Total stockholders' equity	618,480	622,072
Total liabilities and stockholders' equity	$ 986,565	$ 997,096

See accompanying notes.

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

	Three Months Ended March 31,	
	2024	2023
Revenues:		
Product revenue, net	$ 47,845	$ 43,451
Other revenue	2,945	3,474
Total revenues	50,790	46,925
Operating expenses:		
Cost of sales - product	10,966	14,712
Research and development	13,528	13,605
Selling, general and administrative	44,065	36,543
Bad debt expense	-	12,313
Total operating expenses	68,559	77,173
Loss from operations	(17,769)	(30,248)
Other income (expense):		
Interest income	9,468	6,597
Interest expense	(1,695)	(1,686)
Sublease (expense) income (Note 5)	(1,602)	1,598
Other	101	23
Net loss before income taxes	(11,497)	(23,716)
Benefit from (provision for) income taxes	2,776	(616)
Net loss	$ (8,721)	$ (24,332)
Net loss per share attributable to common stockholders		
Basic	$ (0.07)	$ (0.19)
Diluted	$ (0.07)	$ (0.19)
Weighted-average shares used in computing net loss per share attributable to common stockholders:		
Basic	130,200	127,921
Diluted	130,200	127,921

See accompanying notes.

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

	Three Months Ended March 31,	
	2024	2023
Net loss	$ (8,721)	$ (24,332)
Other comprehensive (loss) income, net of tax:		
Change in unrealized loss on marketable securities available-for-sale	(1,457)	666
Cumulative foreign currency translation adjustments	(808)	572
Total other comprehensive (loss) income	(2,265)	1,238
Total comprehensive loss	$ (10,986)	$ (23,094)

See accompanying notes.

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

	Common Stock		Preferred Stock					
Three Months Ended March 31, 2024	**Shares**	**Par Amount**	**Shares**	**Par Amount**	**Additional Paid-In Capital**	**Accumulated Other Comprehensive Loss**	**Accumulated Deficit**	**Total Stockholders' Equity**
Balances at December 31, 2023	129,530	$ 130	-	$ -	$ 1,554,634	$ (2,108)	$ (930,584)	$ 622,072
Issuance of common stock upon exercise of stock options	240	-	-	-	1,635	-	-	1,635
Issuance of common stock upon release of restricted stock awards, net of statutory tax withholdings	995	1	-	-	(8,160)	-	-	(8,159)
Issuance of common stock under Employee Stock Purchase Plan	94	-	-	-	904	-	-	904
Stock compensation expense	-	-	-	-	13,014	-	-	13,014
Total other comprehensive loss	-	-	-	-	-	(2,265)	-	(2,265)
Net loss	-	-	-	-	-	-	(8,721)	(8,721)
Balances at March 31, 2024	130,859	$ 131	-	$ -	$ 1,562,027	$ (4,373)	$ (939,305)	$ 618,480

	Common Stock		Preferred Stock					
Three Months Ended March 31, 2023	**Shares**	**Par Amount**	**Shares**	**Par Amount**	**Additional Paid-In Capital**	**Accumulated Other Comprehensive (Loss) Income**	**Accumulated Deficit**	**Total Stockholders' Equity**
Balances at December 31, 2022	127,604	$ 128	-	$ -	$ 1,510,518	$ (5,438)	$ (924,195)	$ 581,013
Issuance of common stock upon exercise of stock options	41	-	-	-	239	-	-	239
Issuance of common stock upon release of restricted stock awards, net of statutory tax withholdings	746	-	-	-	(5,237)	-	-	(5,237)
Issuance of common stock under Employee Stock Purchase Plan	81	-	-	-	777	-	-	777
Stock compensation expense	-	-	-	-	10,034	-	-	10,034
Total other comprehensive income	-	-	-	-	-	1,238	-	1,238
Net loss	-	-	-	-	-	-	(24,332)	(24,332)
Balances at March 31, 2023	128,472	$ 128	-	$ -	$ 1,516,331	$ (4,200)	$ (948,527)	$ 563,732

See accompanying notes.

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

	Three Months Ended March 31,	
	2024	2023
Operating activities		
Net loss	$ (8,721)	$ (24,332)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation and amortization	1,124	1,013
Amortization of right-of-use assets	824	642
Inventory write off	1,264	-
Sublease termination loss (Note 5)	4,765	-
Accretion of discounts on marketable securities	(4,528)	(3,498)
Stock-based compensation expense	13,014	10,034
Bad debt expense (Note 6)	-	12,313
Non-cash interest expense	1,695	1,686
Changes in operating assets and liabilities:		
Accounts and other receivables, net	(1,621)	30,336
Inventories	(9,780)	1,753
Prepaid expenses and other current assets	(4,800)	(1,304)
Other assets	118	677
Accounts payable	(2,640)	4,096
Lease liabilities	(1,025)	(793)
Accrued and other liabilities	(6,368)	(5,001)
Net cash (used in) provided by operating activities	(16,679)	27,622
Investing activities		
Purchases of marketable securities	(150,685)	(185,301)
Proceeds from maturities and redemption of marketable securities	154,265	134,250
Purchases of property and equipment, net	(749)	(1,283)
Net cash provided by (used in) investing activities	2,831	(52,334)
Financing activities		
Proceeds from exercise of stock options	1,635	239
Proceeds from Employee Stock Purchase Plan	904	777
Payments for taxes related to net share settlement of restricted stock units	(6,742)	(4,106)
Net cash used in financing activities	(4,203)	(3,090)
Effect of exchange rate changes on cash and cash equivalents, and restricted cash	(201)	151
Net decrease in cash and cash equivalents, and restricted cash	(18,252)	(27,651)
Cash and cash equivalents, and restricted cash at beginning of period	150,556	202,211
Cash and cash equivalents, and restricted cash at end of period	$ 132,304	$ 174,560
Supplemental disclosure of cash flow information		
Cash paid during the period for income taxes	$ 949	$ 32
Reclassification of contract asset from other current assets to other assets	$ -	$ 71,307
Reclassification of CEPI accrual to CEPI accrual long-term	$ -	$ (60,337)
Non-cash investing and financing activities:		
Purchases of property and equipment, not yet paid	$ 355	$ 926
Right-of-use assets obtained in exchange of operating lease liabilities	$ -	$ 278

See accompanying notes.

Dynavax Technologies Corporation
Notes to Condensed Consolidated Financial Statements
(Unaudited)

1. Organization

Dynavax Technologies Corporation (“we,” “our,” “us,” “Dynavax” or the “Company”) is a commercial stage biopharmaceutical company developing and commercializing innovative vaccines to help protect the world against infectious diseases. Our first marketed product, HEPLISAV-B® [Hepatitis B Vaccine (Recombinant), Adjuvanted] is approved in the United States, the European Union and Great Britain for the prevention of infection caused by all known subtypes of hepatitis B virus in adults aged 18 years and older. In May 2022, we commenced commercial shipments of HEPLISAV-B in Germany.

We are advancing a pipeline of differentiated product candidates that leverage our CpG 1018® adjuvant, the adjuvant used in HEPLISAV-B, to develop improved vaccines in indications with unmet medical needs. These programs include vaccine candidates under development for shingles and Tdap, and a plague vaccine candidate program in collaboration with and fully funded by the U.S. Department of Defense ("DoD").

Additionally. we manufacture and have supplied in the past CpG 1018 adjuvant, the adjuvant used in HEPLISAV-B, through both commercial supply agreements, and through preclinical and clinical research collaborations with third-party organizations.

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 as of December 31, 2023 has been derived from audited financial statements at that date, but excludes some disclosures required by GAAP for complete financial statements.

The unaudited condensed consolidated financial statements and these notes should be read in conjunction with the audited consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2023, 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 subsidiaries, Dynavax GmbH, located in Düsseldorf, Germany, Dynavax India LLP, located in India, and a branch of Dynavax registered in Italy. All significant intercompany accounts and transactions among these entities have been eliminated from the unaudited condensed consolidated financial statements. We operate in one business segment: discovery, development and commercialization of novel vaccines.

Use of Estimates

The preparation of unaudited condensed consolidated financial statements in conformity with GAAP requires management to make informed estimates and assumptions that may affect the amounts reported in the unaudited condensed consolidated financial statements and accompanying notes, including amounts of revenues and expenses during the reported periods. Management’s estimates are based on historical information available as of the date of the unaudited condensed consolidated financial statements and various other assumptions we believe are reasonable under the circumstances. On an ongoing basis, we evaluate our estimates, judgments and methodologies. Significant estimates and assumptions in the unaudited condensed consolidated financial statements include those related to revenue recognition; accounts receivable; useful lives of long-lived assets; valuation procedures for right-of-use assets and operating lease liabilities; valuation of inventory; research and development expenses; contingencies and share-based compensation. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results may differ materially from these estimates under different assumptions or conditions. Changes in estimates are reflected in reported results in the period in which they become known.

Recent Accounting Pronouncements

Accounting Standards Update 2016-13

In November 2023, the Financial Accounting Standards Board ("FASB") issued ASU 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*, which requires public entities to disclose information about their reportable segments' significant expenses and other segment items on an interim and annual basis. Public entities with a single reportable segment are required to apply the disclosure requirements in ASU 2023-07, as well as all existing segment disclosures and reconciliation requirements in ASC 280 on an interim and annual basis. ASU 2023-07 is effective for fiscal years beginning after December 15, 2023, and for interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. We are currently evaluating the impact of adopting ASU 2023-07.

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*, which requires public entities, on an annual basis, to provide disclosure of specific categories in the rate reconciliation, as well as disclosure of income taxes paid disaggregated by jurisdiction. ASU 2023-09 is effective for fiscal years beginning after December 15, 2024, with early adoption permitted. We are currently evaluating the impact of adopting ASU 2023-09.

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. There were no transfers between Level 1, 2 and 3 during the three months ended March 31, 2024.

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.

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
March 31, 2024				
Assets				
Money market funds	$ 120,106	$ -	$ -	$ 120,106
U.S. treasuries	-	102,363	-	102,363
U.S. government agency securities	-	169,861	-	169,861
Corporate debt securities	-	319,811	-	319,811
Total assets	$ 120,106	$ 592,035	$ -	$ 712,141

	Level 1	Level 2	Level 3	Total
December 31, 2023				
Assets				
Money market funds	$ 131,635	$ -	$ -	$ 131,635
U.S. treasuries	-	74,237	-	74,237
U.S. government agency securities	-	216,688	-	216,688
Corporate debt securities	-	308,552	-	308,552
Total assets	$ 131,635	$ 599,477	$ -	$ 731,112

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.

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

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

	March 31, 2024	December 31, 2023	March 31, 2023	December 31, 2022
Cash and cash equivalents	$ 132,033	$ 150,279	$ 174,350	$ 202,004
Restricted cash (1)	271	277	210	207
Total cash and cash equivalents, and restricted cash shown in the condensed consolidated statements of cash flows	$ 132,304	$ 150,556	$ 174,560	$ 202,211

(1) Restricted cash is included in "Other assets" in the Condensed Consolidated Balance Sheets.

Restricted cash balances relate to certificates of deposit issued as collateral to certain letters of credit issued as security to our lease arrangements (see Note 5).

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

	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
March 31, 2024				
Cash and cash equivalents:				
Cash	$ 11,397	$ -	$ -	$ 11,397
Money market funds	120,106	-	-	120,106
Corporate debt securities	530	-	-	530
Total cash and cash equivalents	132,033	-	-	132,033
Marketable securities available-for-sale:				
U.S. treasuries	102,575	20	(232)	102,363
U.S. government agency securities	170,070	158	(367)	169,861
Corporate debt securities	319,472	70	(261)	319,281
Total marketable securities available-for-sale	592,117	248	(860)	591,505
Total cash and cash equivalents, and marketable securities	$ 724,150	$ 248	$ (860)	$ 723,538
December 31, 2023				
Cash and cash equivalents:				
Cash	$ 11,190	$ -	$ -	$ 11,190
Money market funds	131,635	-	-	131,635
Corporate debt securities	7,453	1	-	7,454
Total cash and cash equivalents	150,278	1	-	150,279
Marketable securities available-for-sale:				
U.S. treasuries	74,109	172	(44)	74,237
U.S. government agency securities	216,265	692	(269)	216,688
Corporate debt securities	300,803	315	(20)	301,098
Total marketable securities available-for-sale	591,177	1,179	(333)	592,023
Total cash and cash equivalents, and marketable securities	$ 741,455	$ 1,180	$ (333)	$ 742,302

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

	March 31, 2024	
	Amortized Cost	Estimated Fair Value
Mature in one year or less	$ 371,571	$ 371,273
Mature after one year through two years	220,546	220,232
	$ 592,117	$ 591,505

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. Unrealized losses are included in accumulated other comprehensive loss in stockholders' equity. We determine whether a decline in the fair value of our available-for-sale ("AFS") debt securities below their amortized cost basis (i.e., an impairment) is due to credit-related factors or noncredit-related factors. Any impairment that is not credit related is recognized in other comprehensive income (loss), net of applicable taxes. Credit-related impairments (if any) are recognized as an allowance on the balance sheet with a corresponding adjustment to earnings. Both the allowance and the adjustment to net income can be reversed if conditions change.

There were no realized gains or losses from the sale of marketable securities during the three months ended March 31, 2024 and 2023. We do not intend to sell, and are not required to sell, the investments that are in an unrealized loss position before recovery of their amortized cost basis. During the three months ended March 31, 2024, we did not record an allowance for credit losses, as

management believes any such losses would be immaterial based on the investment-grade credit rating for each of the investments as of March 31, 2024. As such, there have been no declines in fair value that have been identified as a credit-related impairment.

4. Inventories

The following table presents inventories (in thousands):

	March 31, 2024	December 31, 2023
Raw materials	$ 19,660	$ 27,256
Work-in-process	33,969	18,954
Finished goods	8,177	7,080
Total	$ 61,806	$ 53,290

5. Commitments and Contingencies

Leases

We lease our facilities in Emeryville, California and Düsseldorf, Germany. We lease and sublease certain manufacturing and office space with lease terms ranging from 3 to 12 years. These leases require monthly lease payments that may be subject to annual increases throughout the lease term. Certain of these leases also include options to renew or extend the lease for two successive five-year terms. These optional periods have not been considered in the determination of the right-of-use assets or lease liabilities associated with these leases as we did not consider the exercise of these options to be reasonably certain.

Sublease Termination and New Sublease

On February 22, 2024, our third-party subtenant obtained the approval of a voluntary petition for relief under Chapter 11 of the United States Code. As a consequence, the sublease agreement with that third-party for the subleased premises (approximately 75,662 square feet of office/laboratory space located at 5959 Horton Street, Emeryville, California) was terminated effective March 7, 2024. Simultaneously, on March 7, 2024, we entered into a new sublease agreement with a different third-party under similar conditions and for the same premises. Rent from the new sublease agreement is subject to scheduled annual increases, and the subtenant is responsible for certain operating expenses and taxes throughout the life of the sublease. The new sublease term expires on March 31, 2031, unless earlier terminated, concurrent with the term of our lease. The subtenant has no option to extend the sublease term.

As a result of the termination of the existing sublease agreement, we recognized a net loss of approximately $3.5 million comprising primarily of a $4.8 million write-off of the accrued rent asset balance as of March 7, 2024, partially offset by the collection of a termination payment of $1.3 million. Sublease income for the three months ended March 31, 2024 was $1.9 million. Sublease income for the three months ended March 31, 2023 was $1.6 million. Both the net loss on sublease termination and the sublease income are included net in “Sublease (loss) income” within “other income (expense)” in our condensed consolidated statements of operations. Rent received from the new subtenant in excess of rent paid to the landlord shall be shared by paying the landlord 50% of the excess rent. The excess rent is considered a variable lease payment and the total estimated payments are being recognized as additional rent expense on a straight-line basis.

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

	Three Months Ended March 31,	
	2024	2023
Operating lease expense	$ 1,416	$ 1,388

Cash paid for amounts included in the measurement of lease liabilities was $1.9 million and $1.7 million for the three months ended March 31, 2024 and 2023, respectively, and were included in change in lease liabilities in our condensed consolidated statement of cash flows.

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

	March 31, 2024	December 31, 2023
Operating lease liabilities:		
Current portion of lease liabilities (included in other current liabilities)	$ 4,557	$ 4,496
Long-term portion of lease liabilities	28,559	29,720
Total operating lease liabilities	$ 33,116	$ 34,216

As of March 31, 2024, the maturities of our sublease income and operating lease liabilities were as follows (in thousands):

Years ending December 31,	Sublease Income	Operating Lease Liabilities
2024 (remaining)	$ 3,700	$ 5,716
2025	6,127	6,966
2026	6,342	6,107
2027	6,564	6,038
2028	6,794	6,201
Thereafter	16,191	15,021
Total	$ 45,718	46,049
Less:		
Present value adjustment		(12,933)
Total		$ 33,116

The weighted average remaining lease term and the weighted average discount rate used to determine the operating lease liabilities were as follows:

	March 31, 2024	December 31, 2023
Weighted average remaining lease term	6.5 years	6.7 years
Weighted average discount rate	10.1%	10.1%

Commitments

As of March 31, 2024 and December 31, 2023, our material non-cancelable purchase and other commitments for the supply of HEPLISAV-B totaled $40.5 million and $43.4 million, respectively.

On September 7, 2023 (the “Effective Date”), we entered into an agreement (the “Avecia Supply Agreement”) with Nitto Denko Avecia Inc. (“Avecia”) for the manufacture and supply of our CpG 1018 adjuvant using a specific production process. Under the Avecia Supply Agreement, Avecia has agreed to produce and supply to us quantities of CpG 1018 adjuvant ordered by us after the Effective Date. Subject to certain conditions in the Avecia Supply Agreement, we are obligated to purchase all of our annual volume requirements of CpG 1018 adjuvant from Avecia up to a specified production capacity. We may alternatively order CpG 1018 adjuvant produced using a different production process pursuant to the existing supply agreement between us and Avecia dated October 1, 2012 (the “2012 Agreement”). Included in the balance of our material non-cancelable purchase and other commitments for the supply of HEPLISAV-B, as of March 31, 2024 and December 31, 2023, our aggregate minimum commitment for the supply of CpG 1018 adjuvant under the Avecia Supply Agreement totaled $7.4 million for each period, anticipated within the next 12 months.

In addition to the non-cancelable commitments included above, we have entered into contractual arrangements that obligate us to make payments to the contractual counterparties upon the occurrence of future events. In addition, in the normal course of operations, we have entered into license and other agreements and intend to continue to seek additional rights relating to compounds or technologies in connection with our discovery, manufacturing and development programs. Under the terms of the agreements, we may be required to pay future up-front fees, milestones and royalties on net sales of products originating from the licensed technologies, if any, or other payments contingent upon the occurrence of future events that cannot reasonably be estimated.

We also rely on and have entered into agreements with research institutions, contract research organizations and clinical investigators as well as clinical material manufacturers. 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.

As of March 31, 2024, the aggregate principal amount of our convertible senior notes ("Convertible Notes") was $225.5 million, excluding debt discount of $2.5 million (see Note 7).

During 2004, we established a letter of credit with Deutsche Bank as security for our Düsseldorf lease in the amount of €0.2 million (Euros). The letter of credit remained outstanding through March 31, 2024 and was collateralized by a certificate of deposit for €0.2 million, which has been included in restricted cash in the condensed consolidated balance sheets as of March 31, 2024.

In conjunction with our agreement 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 our immune-oncology compound, SD-101. In July 2020, we sold assets related to SD-101 to Surefire Medical, Inc. d/b/a TriSalus Life Sciences ("TriSalus"). We paid $2.5 million to Holdings in August 2020. In each of September 2021, May 2022 and September 2023, we received $1.0 million from TriSalus because it met pre-commercialization milestones. We recorded the proceeds as gain on sale of assets in our condensed consolidated statements of operations. We paid Holdings $0.5 million in each of September 2021, May 2022 and October 2023. We included the payments in selling, general and administrative expenses in our condensed consolidated statements of operations. No liability has been recorded under this agreement as of March 31, 2024.

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.

6. Collaborative Research, Development and License Agreements

Coalition for Epidemic Preparedness Innovations

In January 2021, we entered into an agreement (together with subsequent amendments, the "CEPI Agreement") with Coalition for Epidemic Preparedness Innovations ("CEPI") for the manufacture and reservation of a specified quantity of CpG 1018 adjuvant ("CpG 1018 Materials"). In May 2021, we entered into the first amendment to the CEPI Agreement. The CEPI Agreement enables CEPI to direct the supply of CpG 1018 Materials to CEPI partner(s). CEPI partner(s) would purchase CpG 1018 Materials under separately negotiated agreements. The CEPI Agreement also allows us to sell CpG 1018 Materials to third parties if not purchased by a CEPI partner within a two-year term.

In exchange for reserving CpG 1018 Materials and agreeing to sell CpG 1018 Materials to CEPI partner(s) at pre-negotiated prices, CEPI agreed to provide payments in the form of an interest-free, unsecured, forgivable loan (the "Advance Payments"). We are obligated to repay the Advance Payments, in proportion to quantity sold, if and to the extent we receive payments from sales of CpG 1018 Materials reserved under the CEPI Agreement. If the vaccine programs pursued by CEPI partner(s) are unsuccessful and no alternative use is found for CpG 1018 Materials reserved under the CEPI Agreement, the applicable Advance Payments will be forgiven at the end of the two-year term.

On April 27, 2023, we entered into a waiver and second amendment to the CEPI Agreement by and between us and CEPI (the "CEPI-Bio E Assignment Agreement"). Pursuant to the CEPI-Bio E Assignment Agreement, CEPI has forgiven the entirety of the outstanding Advance Payments for CpG 1018 Materials allocated to and ordered by Bio E under the CEPI Agreement and has assumed our previous rights to $47.4 million of Bio E accounts receivable.

Through March 31, 2024, we received Advance Payments totaling approximately $175.0 million pursuant to the CEPI Agreement, of which $67.3 million have been repaid and $47.4 million have been forgiven (as discussed above). As of March 31, 2024, remaining Advance Payments totaling $60.3 million in CEPI accrual long-term were reflected in our condensed consolidated balance sheets, representing the outstanding balance of the Advance Payments relating to the Clover Supply Agreement (as defined and discussed below). There were no deferred revenue balances related to the CEPI Agreement as of March 31, 2024 and December 31, 2023.

Zhejiang Clover Biopharmaceuticals, Inc. and Clover Biopharmaceuticals (Hong Kong) Co., Limited

In June 2021, we entered into an agreement with Zhejiang Clover Biopharmaceuticals, Inc. and Clover Biopharmaceuticals (Hong Kong) Co., Limited (collectively, "Clover"), for the commercial supply of CpG 1018 adjuvant, for use with Clover's COVID-19 vaccine candidate, SCB-2019 (together with subsequent amendments, the "Clover Supply Agreement"). Under the Clover Supply Agreement, Clover committed to purchase specified quantities of CpG 1018 adjuvant, at pre-negotiated prices pursuant to the CEPI Agreement, for use in Clover's commercialization of vaccines containing SCB-2019 and CpG 1018 adjuvant ("Clover Product"). The Clover Supply Agreement also provides terms for Clover to order additional quantities of CpG 1018 adjuvant beyond the quantities reserved by CEPI. In 2022 and 2023, we signed four amendments to the Clover Supply Agreement. The terms and conditions of the Clover Supply Agreement were operative through December 2022, and as of December 31, 2022, we had satisfied all delivery obligations thereunder.

For CpG 1018 adjuvant reserved for Clover under the CEPI Agreement, Clover is obligated to pay us the purchase price upon the earliest of (i) the true-up exercise, (ii) within a specified period after Clover delivers Clover Product to a customer, or (iii) Clover's receipt of payment for Clover Product from a customer. When we transfer control of CpG 1018 adjuvant that is reserved under the CEPI Agreement, we recognize product revenue and a corresponding contract asset as our right to consideration is contingent on something other than the passage of time, as outlined above.

The contract asset of $71.3 million relating to Clover was included in other assets (long term) as of March 31, 2024 and December 31, 2023. The contract asset was included in other assets (long term) to reflect the timing of expected long term demand for CpG 1018 adjuvant for Clover Product.

Corresponding Advance Payments of $60.3 million relating to Clover are recorded in CEPI accrual long-term in our condensed consolidated balance sheets as of March 31, 2024. These Advance Payments may be repaid using cash collected from Clover or forgiven in accordance with the CEPI Agreement. We had no accounts receivable balance from Clover as of March 31, 2024 and December 31, 2023.

Biological E. Limited

In July 2021, we entered into an agreement (together with subsequent amendments, the "Bio E Supply Agreement") with Biological E. Limited ("Bio E"), for the commercial supply of CpG 1018 adjuvant, for use with Bio E's subunit COVID-19 vaccine candidate, CORBEVAX™. Under the Bio E Supply Agreement, Bio E committed to purchase specified quantities of CpG 1018 adjuvant, at pre-negotiated prices pursuant to the CEPI Agreement, for use in Bio E's commercialization of its CORBEVAX vaccine ("Bio E Product") with specified delivery dates in 2021 and the first quarter of 2022. The Bio E Supply Agreement also provides terms for Bio E to order additional quantities of CpG 1018 adjuvant beyond the quantities reserved by CEPI. In June 2022 and in October 2022, we entered into amendments to the Bio E Supply Agreement (the "Bio E Amendment No. 1" and the "Bio E Amendment No. 2," together the "Bio E Amendments"). The Bio E Amendments primarily established: (i) a new payment schedule for certain outstanding invoices related to the CEPI product to be the earlier of December 31, 2022, or receipt of certain amounts from Bio E from the Government of India in connection with their advance purchase agreement for CORBEVAX, and (ii) further modified the scope of the Bio E Supply Agreement, by reducing certain quantities of CpG 1018 adjuvant to be delivered. The terms and conditions of the Bio E Supply Agreement were operative through December 2022, and as of December 31, 2022, we had satisfied all delivery obligations thereunder.

As of March 31, 2024, we had no net accounts receivable balance from Bio E. In 2023, we recorded an allowance for doubtful accounts of $12.3 million, which was determined by assessing changes in Bio E's credit risk, contemplation of ongoing negotiations relating to Bio E Amendment No. 3 (defined below), and Bio E's dependence on cash collections from the Government of India, which have been delayed and significantly reduced in connection with the overall reduction in demand for CORBEVAX from the Government of India.

On April 26, 2023, we entered into a third amendment to the Bio E Supply Agreement (the "Bio E Amendment No. 3"), and on April 27, 2023, we entered into the CEPI-Bio E Assignment Agreement. Pursuant to the CEPI-Bio E Assignment Agreement, CEPI has forgiven the entirety of remaining amounts outstanding relating to a liability for Advance Payments of $47.4 million (the "Bio E CEPI Advance Payments") for CpG 1018 Materials allocated to Bio E, and has assumed our previous rights to collect $47.4 million of Bio E accounts receivable. Pursuant to the Bio E Amendment No. 3, we collected $14.5 million from Bio E (including $13.5 million in April 2023 and $1.0 million in August 2023). Accordingly, as of March 31, 2024, the CEPI-Bio E Assignment Agreement resulted in: (i) no net accounts receivable balance, and (ii) the derecognition of $47.4 million CEPI accrual in connection with the Bio E CEPI Advance Payments. The Bio E Amendment No. 3 provides for additional future payment of either $5.5 million in the event that Bio E receives at least $125.0 million, or $12.3 million in the event that Bio E receives at least $250.0 million in future payments from the Government of India associated with its CORBEVAX product on or before August 15, 2025. These additional amounts are not considered collectible until the achievement of these future milestones.

U.S. Department of Defense

In September 2021, we entered into an agreement with the DoD for the development of a recombinant plague vaccine adjuvanted with CpG 1018 adjuvant for approximately $22.0 million over two and a half years. Under the agreement, we are conducting a Phase 2 clinical trial combining our CpG 1018 adjuvant with the DoD's rF1V vaccine. In July 2023 and March 2024, we executed contract modifications with the DoD to support advancement into a nonhuman primate challenge study and a Chemistry, Manufacturing and Control ("CMC") Gap analysis, with the agreement now totaling $38.0 million through 2025. For the three months ended March 31, 2024 and 2023, we recognized revenue of $2.8 million and $3.5 million, respectively, which is included in other revenue in our condensed consolidated statements of operations.

7. Convertible Notes

In May 2021, we issued $225.5 million of Convertible Notes in a private placement. Total proceeds from the issuance of the Convertible Notes, net of debt issuance and offering costs of $5.7 million, were $219.8 million. We used $190.2 million of the net proceeds to retire our previous loan agreement with CRG Servicing LLC and $27.2 million of the net proceeds to pay the costs of the Capped Calls described below.

The Convertible Notes are general unsecured obligations and accrue interest at a rate of 2.50% per annum payable semiannually in arrears on May 15 and November 15 of each year, beginning on November 15, 2021. The Convertible Notes mature on May 15, 2026, unless converted, redeemed or repurchased prior to such date.

The Convertible Notes are convertible into cash, shares of our common stock or a combination of cash and shares of our common stock, at our election, at an initial conversion rate of 95.5338 shares of our common stock per $1,000 principal amount of the Convertible Notes, which is equivalent to an initial conversion price of approximately $10.47 per share of our common stock. The Convertible Notes are convertible at the option of the holders at any time prior to the close of business on the business day immediately preceding February 15, 2026, only under the following circumstances:

- During any calendar quarter (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- During the five business day period after any ten consecutive trading day period (the “measurement period”), in which the “trading price” (as defined the indenture governing the Convertible Notes) per $1,000 principal amount of the Convertible Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day;
- If we call such Convertible Notes for redemption, at any time prior to the close of business on the scheduled trading day immediately preceding the redemption date; or
- Upon the occurrence of specified corporate events as set forth in the indenture governing the Convertible Notes.

On or after February 15, 2026 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders of the Convertible Notes may convert all or any portion of their Convertible Notes regardless of the foregoing circumstances.

Since we have the election of repaying the Convertible Notes in cash, shares of our common stock, or a combination of both, we continued to classify the Convertible Notes as long-term debt on the condensed consolidated balance sheets as of March 31, 2024.

We may redeem for cash all or any portion of the Convertible Notes (subject to the partial redemption limitation described in the indenture governing the Convertible Notes), at our option, on or after May 20, 2024 and prior to the 31st scheduled trading day immediately preceding the maturity date, if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period (including the last trading day of such period) ending on the trading day immediately preceding the date on which we provide notice of redemption, at a redemption price equal to 100% of the principal amount of the Convertible Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date.

If we undergo a fundamental change (as set forth in the indenture governing the Convertible Notes), noteholders may require us to repurchase for cash all or any portion of their Convertible Notes at a repurchase price equal to 100% of the principal amount of the

notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date. In addition, following certain corporate events (as set forth in the indenture governing the Convertible Notes) or if we deliver a notice of redemption prior to the maturity date, we will, in certain circumstances, adjust the conversion rate for a noteholder who elects to convert its notes in connection with such a corporate event or such notice of redemption.

We accounted for the Convertible Notes as a single liability in accordance with ASU 2020-06 - *Accounting for Convertible Instruments and Contracts in an Entity's Own Equity* ("ASU 2020-06"). As of March 31, 2024, the Convertible Notes were recorded at the aggregate principal amount of $225.5 million less unamortized issuance costs of $2.5 million as a long-term liability on the condensed consolidated balance sheets. As of March 31, 2024, the fair value of the Convertible Notes was $300.6 million. The fair value was estimated using a reputable third-party valuation model based on observable inputs and is considered Level 2 in the fair value hierarchy. The debt issuance costs are amortized to interest expense over the contractual term of the Convertible Notes at an effective interest rate of 3.1%.

The following table presents the components of interest expense related to Convertible Notes (in thousands):

	Three Months Ended March 31,	
	2024	2023
Stated coupon interest	$ 1,409	$ 1,409
Amortization of debt issuance cost	286	277
Total interest expense	$ 1,695	$ 1,686

Capped Calls

In connection with the issuance of the Convertible Notes, we entered into capped call transactions with one of the initial purchasers of the Convertible Notes and other financial institutions, totaling $27.2 million (the "Capped Calls"). The Capped Calls cover, subject to customary adjustments, the number of shares of our common stock that initially underlie the Convertible Notes (or 21,542,871 shares of our common stock). The Capped Calls have an initial strike price and an initial cap price of $10.47 per share and $15.80 per share, respectively, subject to certain adjustments. Conditions that cause adjustments to the initial strike price of the Capped Calls mirror conditions that result in corresponding adjustments to the conversion price of the Convertible Notes. The Capped Calls are expected to offset the potential dilution to our common stock as a result of any conversion of the Convertible Notes, subject to a cap based on the cap price.

For accounting purposes, the Capped Calls are considered separate financial instruments and not part of the Convertible Notes. As the Capped Calls transactions meet certain accounting criteria, we recorded the cost of the Capped Calls, totaling $27.2 million, as a reduction to additional paid-in capital within the condensed consolidated statements of stockholders' equity.

8. Revenue Recognition

Disaggregation of Revenues

The following table disaggregates our product revenue, net by product and geographic region and disaggregates our other revenues by geographic region (in thousands):

	Three Months Ended March 31, 2024			Three Months Ended March 31, 2023		
	U.S.	Non U.S.	Total	U.S.	Non U.S.	Total
Product revenue, net						
HEPLISAV-B	$ 46,699	$ 1,146	$ 47,845	$ 43,451	$ -	$ 43,451
Total product revenue, net	$ 46,699	$ 1,146	$ 47,845	$ 43,451	$ -	$ 43,451
Other revenue	2,802	143	2,945	3,474	-	3,474
Total revenues	$ 49,501	$ 1,289	$ 50,790	$ 46,925	$ -	$ 46,925

Revenues from Major Customers and Collaboration Partners

All of our HEPLISAV-B sales in the U.S. are to certain wholesalers and specialty distributors whose principal customers include independent hospitals and clinics, integrated delivery networks, public health clinics and prisons, the Department of Defense, the Department of Veterans Affairs and retail pharmacies. All of our HEPLISAV-B sales in Germany are to one distributor.

The following table summarizes HEPLISAV-B product revenue from each of our three largest customers (as a percentage of total HEPLISAV-B net product revenue):

	Three Months Ended March 31,	
	2024	2023
Largest customer	27%	27%
Second largest customer	19%	22%
Third largest customer	18%	17%

Contract Balances

The following table summarizes balances and activities in HEPLISAV-B product revenue allowance and reserve categories for the three months ended March 31, 2024 (in thousands):

	Balance at Beginning of Period	Provisions related to current period sales	Credit or payments made during the period	Adjustments related to prior periods	Balance at End of Period
Three months ended March 31, 2024:					
Accounts receivable reserves (1)	$ 7,011	$ 13,375	$ (13,622)	$ -	$ 6,764
Revenue reserve accruals (2)	$ 21,004	$ 10,968	$ (9,698)	$ -	$ 22,274

(1) Reserves are for chargebacks, discounts and other fees.
(2) Accruals are for returns, rebates and other fees.

When we perform services under our agreement with the DoD, we recognize product revenue and a corresponding contract asset as our right to consideration is conditioned on something other than the passage of time. See Note 6 for further discussion. The following table summarizes balances and activities in our contract asset account (in thousands):

	Balance at Beginning of Period	Additions	Subtractions	Balance at End of Period
Three months ended March 31, 2024				
Contract asset, included in other current assets (1)	$ 1,389	$ 2,802	$ (2,017)	$ 2,174
Contract asset, included in other assets (long term) (2)	$ 71,307	$ -	$ -	$ 71,307

(1) The $2.2 million of contract asset is derived from our agreement with the DoD.
(2) The Clover contract asset was included in long term assets to reflect the timing of expected long term demand for CpG 1018 adjuvant for Clover Product. See Note 6 for further discussion.

9. Net Loss Per Share

Basic net loss per share is computed by dividing net loss attributable to common stockholders by the weighted-average number of shares of our common stock outstanding.

For the calculation of diluted net income per share, net income attributable to common stockholders for basic net income per share is adjusted by the effect of dilutive securities, including awards under our equity compensation plans and change in fair value of warrant liability. Diluted net income per share attributable to common stockholders is computed by dividing the resulting net income attributable to common stockholders by the weighted-average number of fully diluted common shares outstanding.

The numerators and denominators of the basic net loss and diluted net income per share computations for our common stock are calculated as follows (in thousands):

	Three Months Ended March 31,	
	2024	2023
Numerator		
Net loss attributable to common stockholders, basic and diluted	$ (8,721)	$ (24,332)
Denominator		
Weighted average common stock outstanding, basic and diluted	130,200	127,921
Net loss per share attributable to common stockholders		
Basic	$ (0.07)	$ (0.19)
Diluted	$ (0.07)	$ (0.19)

The following were excluded from the calculation of diluted net loss per share as the effect of their inclusion would have been anti-dilutive (in thousands).

	Three months ended March 31,	
	2024	2023
Outstanding securities not included in diluted net loss per share calculation:		
Stock options and stock awards	18,161	15,622
Convertible Notes (as converted to common stock)	21,543	21,543
Total	39,704	37,165

10. Common Stock

Common Stock Outstanding

As of March 31, 2024, there were 130,859,129 shares of our common stock outstanding.

We entered into an at-the-market Sales Agreement with Cowen and Company, LLC ("Cowen") on August 6, 2020 and an amendment to such agreement on August 3, 2023 (the sales agreement as amended, the "ATM Agreement"). Under the ATM Agreement, we may offer and sell from time to time, at our sole discretion, shares of our common stock having an aggregate offering price of up to $120.0 million through Cowen as our sales agent. We agreed to pay Cowen a commission of up to 3% of the gross sales proceeds of any common stock sold through Cowen under the ATM Agreement. As of March 31, 2024, we had $120.0 million remaining under the ATM Agreement.

11. Equity Plans and Stock-Based Compensation

Equity Plans

In January 2021, we adopted the Dynavax Technologies Corporation 2021 Inducement Award Plan ("2021 Inducement Plan"), pursuant to which we reserved 1,500,000 shares of common stock for issuance under the plan to be used exclusively for grants of awards to individuals who were not previously our employees or directors. In June 2021, we amended the 2021 Inducement Plan ("Amended 2021 Inducement Plan") to increase the number of shares of common stock reserved under the 2021 Inducement Plan to 3,250,000. The Amended 2021 Inducement Plan was terminated effective as of April 3, 2022 and, therefore, there are no shares of our common stock available for grant.

In May 2022, our stockholders approved the amendment and restatement of our 2018 Equity Incentive Plan (the "Amended 2018 EIP") to, among other things, increase the authorized number of shares of common stock by 15,000,000. The maximum number of shares of common stock that may be issued under the Amended 2018 EIP, will not exceed 32,600,000 shares of common stock. As

of March 31, 2024, the Amended 2018 EIP and the Amended and Restated 2014 Employee Stock Purchase Plan are our active plans (the "Plans").

The Amended 2018 EIP is administered by our Board of Directors, or a designated committee of the Board of Directors, and awards granted under the Amended 2018 EIP have a term of seven years unless earlier terminated by the Board of Directors. As of March 31, 2024, there were 3,035,397 shares of common stock reserved for issuance under the Amended 2018 EIP.

Under our Amended 2018 EIP, we may grant stock options, restricted stock units ("RSUs"), performance-based awards, and other awards that are settled in shares of our common stock. Our equity awards generally vest over a three-year period contingent upon continuous service and unless exercised, expire seven or ten years from the date of grant (or earlier upon termination of continuous service). Activity under our Plans is set forth below:

Stock Options

The following table summarizes the activity of stock options for the three months ended March 31, 2024:

	Shares Underlying Outstanding Options (in thousands)	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in thousands)
Balance as of December 31, 2023	10,120	$ 10.78	4.18	$ 37,388
Options granted	1,505	12.46		
Options exercised	(240)	6.82		
Options cancelled:				
Options forfeited (unvested)	(2)	9.52		
Options expired (vested)	(89)	15.46		
Balance as of March 31, 2024	11,294	$ 11.05	4.39	$ 23,032
Vested and expected to vest as of March 31, 2024	11,050	$ 11.03	4.35	$ 22,954
Exercisable as of March 31, 2024	7,653	$ 10.56	3.59	$ 20,912

Restricted Stock Units

The following table summarizes the activity of RSUs for the three months ended March 31, 2024:

	Number of Shares (in thousands)	Weighted-Average Grant-Date Fair Value Per Share
Non-vested as of December 31, 2023	4,445	$ 11.57
Granted	2,962	12.49
Vested (1)	(1,637)	11.11
Forfeited	(54)	12.91
Non-vested as of March 31, 2024	5,716	$ 12.16

(1) Inclusive of approximately 642,344 RSUs for the three months ended March 31, 2024, which were not converted into shares due to net share settlement in order to cover the required amount of employee withholding taxes. The value of the withheld shares was classified as a reduction to additional paid-in capital.

Market-based Performance Stock Units

We granted market-based performance restricted stock units (“PSUs”) to certain executives. These PSUs vest upon a specified market condition. The summary of PSU activities for the three months ended March 31, 2024 is as follows:

	Number of Shares (in thousands)	Weighted-Average Grant-Date Fair Value Per Share
Non-vested as of December 31, 2023	557	$ 15.95
Granted	558	17.23
Non-vested as of March 31, 2024	1,115	$ 16.59

Performance-based Options

As of March 31, 2024, approximately 36,000 shares underlying performance-based options were outstanding.

Significant Assumptions in Estimating Option Fair Value

The fair value of each time-based option is estimated on the date of grant using the Black-Scholes option valuation model. The fair value of each RSU is determined at the date of grant using our closing stock price. The fair value of each PSU is estimated using the Monte Carlo simulation method on the date of grant. The weighted-average assumptions used in the calculations of these fair value measurements are as follows:

	Stock Options		Market-Based Performance Stock Units	
	Three Months Ended March 31,		Three Months Ended March 31,	
	2024	2023	2024	2023
Weighted-average fair value per share	$ 7.88	$ 7.28	$ 17.23	$ 18.25
Risk-free interest rate	4.2%	4.0%	4.3%	4.3%
Expected life (in years)	4.5	4.5	2.9	2.9
Volatility	0.8	0.8	0.6	0.9

Stock-based Compensation

Compensation expense is based on awards ultimately expected to vest and reflects estimated forfeitures. For equity awards with time-based vesting, the fair value is amortized to expense on a straight-line basis over the vesting periods.

We have also granted performance-based equity awards to certain of our employees. For equity awards with performance-based vesting criteria, the fair value is amortized to expense when the achievement of the vesting criteria becomes probable.

The following table summarizes stock-based compensation expense recorded in each component of operating expenses in our condensed consolidated statements of operations, and amounts capitalized to our inventories (in thousands):

	Three Months Ended March 31,	
	2024	2023
Research and development	$ 2,665	$ 2,112
Selling, general and administrative	8,920	6,830
Cost of sales - product	559	695
Inventories	870	397
Total	$ 13,014	$ 10,034

12. Income Taxes

We are subject to U.S. federal, state and foreign income taxes. For the three months ended March 31, 2024 and 2023, we recorded an income tax benefit of $2.8 million and an income tax provision of $0.6 million, respectively. Our effective tax rate was approximately 24.2% and (2.6)% for the three months ended March 31, 2024 and 2023, respectively. For the three months ended March 31, 2024, the primary difference between the effective tax rate and the federal statutory rate is driven by state and foreign tax expense. For the three months ended March 31, 2023, the primary difference between the effective tax rate and the federal statutory rate is due to the benefit of net operating losses utilized during the periods and the full valuation allowance we established on our federal, state, and certain foreign deferred tax assets.

The tax benefit of net operating losses, temporary differences and credit carryforwards is required to be recorded as an asset to the extent that management assesses that realization is "more likely than not." Realization of the future tax benefits is dependent on our ability to generate sufficient taxable income within the carryforward period. A high degree of judgment is required to determine if, and the extent to which, valuation allowances should be recorded against deferred tax assets. In making such determination, we consider all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax planning strategies and recent financial operations. Based on all available evidence as of March 31, 2024, both positive and negative, and the weight of that evidence to the extent such evidence can be objectively verified, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not more likely than not to be realized, and, accordingly, has provided a valuation allowance.

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 the related Notes and Part II, Item 7 "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, 2023.

Overview

We are a commercial stage biopharmaceutical company developing and commercializing innovative vaccines to help protect the world against infectious diseases. Our first marketed product, HEPLISAV-B® [Hepatitis B Vaccine (Recombinant), Adjuvanted], is approved in the United States, the European Union and Great Britain for the prevention of infection caused by all known subtypes of hepatitis B virus in adults aged 18 years and older. In May 2022, we commenced commercial shipments of HEPLISAV-B in Germany.

In April 2022, the CDC's Advisory Committee on Immunization Practices ("ACIP") published its universal recommendation for hepatitis B vaccination in adults, advising that all adults aged 19-59 should be vaccinated against hepatitis B. We believe this has helped create a significantly expanded total annual market opportunity that could grow to over $800 million in the U.S. by 2027, with HEPLISAV-B well positioned to achieve a majority market share. Our annual revenue has continued to grow significantly since the recommendation was made, as a result of our successful efforts to capture a greater share of an expanding market.

We are advancing a pipeline of differentiated product candidates that leverage our CpG 1018 adjuvant to develop improved vaccines in indications with unmet medical needs. These programs include vaccine candidates under development for shingles, Tdap and plague. Additionally, we are working to advance product candidates utilizing our CpG 1018 adjuvant through discovery efforts and preclinical and clinical collaborations with third-party research organizations.

In addition, we manufacture and have supplied in the past, and could supply in the future, our CpG 1018 adjuvant to a number of global customers, including companies engaged in the development and manufacture of COVID-19 vaccines across a variety of vaccine platforms utilizing CpG 1018 adjuvant. While we did not recognize any CpG 1018 adjuvant revenue in 2023 or the first quarter of 2024, we could see new demand in the future if our collaborators work through their inventory on hand and need additional supply, or new programs utilizing our adjuvant advance to later stages up to and including commercialization. However, long-term demand for CpG 1018 adjuvant supporting COVID-19 or other vaccines will be highly dependent on each customer's ability to commercialize in respective territories and geographies where their respective COVID-19 or other vaccines are approved for use.

HEPLISAV-B® Vaccine [Hepatitis B Vaccine (Recombinant), Adjuvanted]

In Phase 3 trials, HEPLISAV-B demonstrated faster and higher rates of protection with two doses in one month compared to another currently approved hepatitis B vaccine which requires three doses over six months, with a similar safety profile. HEPLISAV-B is the only two-dose hepatitis B vaccine for adults approved in the U.S., the European Union and Great Britain.

We have worldwide commercial rights to HEPLISAV-B and we market it in the United States and the European Union. There are four other vaccines approved for the prevention of hepatitis B in the U.S.: Engerix-B and Twinrix® from GlaxoSmithKline plc, Recombivax-HB® from Merck & Co and PreHevbrio™ from VBI Vaccines Inc. In February 2021, we received Marketing Authorization of HEPLISAV-B from the European Commission for prevention of infection caused by all known subtypes of hepatitis B virus in adults aged 18 years and older. In May 2021, we entered into a commercialization agreement with Bavarian Nordic for the marketing and distribution of HEPLISAV-B in Germany, and in May 2022, we commenced commercial shipments of HEPLISAV-B in Germany. In March 2023, we received marketing authorization in Great Britain for HEPLISAV-B for the active immunization against hepatitis B virus infection caused by all known subtypes of hepatitis B virus in adults aged 18 years and older.

All of our HEPLISAV-B sales in the U.S. are to certain wholesalers and specialty distributors whose principal customers include independent hospitals and clinics, integrated delivery networks, public health clinics and prisons, the Department of Defense, the Department of Veterans Affairs and retail pharmacies. All of our HEPLISAV-B sales in Germany are to one distributor. For the three months ended March 31, 2024, HEPLISAV-B product revenue, net was $47.8 million.

CpG 1018® Adjuvant Supply for COVID-19 Vaccines

In January 2021, we entered into an agreement (together with subsequent amendments, the "CEPI Agreement") with Coalition for Epidemic Preparedness Innovations ("CEPI") for the manufacture and reservation of a specified quantity of CpG 1018 adjuvant. In May 2021, we entered into the first amendment to the CEPI Agreement. The CEPI Agreement enabled CEPI to direct the supply of CpG 1018 adjuvant to CEPI partner(s). In exchange for reserving CpG 1018 adjuvant, CEPI agreed to provide advance payments in the form of an interest-free, unsecured, forgivable loan (the "Advance Payments") of up to $176.4 million.

Through March 31, 2024, we have received Advance Payments totaling approximately $175.0 million pursuant to the CEPI Agreement, of which $67.3 million have been repaid and $47.4 million have been forgiven (as discussed below). As of March 31, 2024, remaining Advance Payments totaling $60.3 million were reflected in CEPI accrual long-term in our condensed consolidated balance sheets, representing the outstanding balance of the Advance Payments relating to the Clover Supply Agreement (as defined and discussed below). There were no deferred revenue balances related to the CEPI Agreement as of March 31, 2024 and December 31, 2023.

On April 27, 2023, we entered into a waiver and second amendment to the CEPI Agreement by and between us and CEPI (the "CEPI-Bio E Assignment Agreement"). Pursuant to the CEPI-Bio E Assignment Agreement, CEPI forgave the entirety of the outstanding Advance Payments for CpG 1018 Materials allocated to and ordered by Bio E under the CEPI Agreement and assumed our previous rights to $47.4 million of Bio E accounts receivable.

In June 2021, we entered into an agreement (together with subsequent amendments, the "Clover Supply Agreement") with Zhejiang Clover Biopharmaceuticals, Inc. and Clover Biopharmaceuticals (Hong Kong) Co., Limited (collectively, "Clover") for the commercial supply of CpG 1018 adjuvant, for use with its protein-based COVID-19 vaccine candidate, SCB-2019. Under the Clover Supply Agreement, Clover committed to purchase specified quantities of CpG 1018 adjuvant, at pre-negotiated prices pursuant to the CEPI Agreement, for use in Clover's commercialization of vaccines containing SCB-2019 and CpG 1018 adjuvant ("Clover Product"). The Clover Supply Agreement also provided terms for Clover to order additional quantities of CpG 1018 adjuvant beyond the quantities reserved by CEPI. In 2022 and 2023, we signed four amendments to the Clover Supply Agreement. The terms and conditions of the Clover Supply Agreement were operative through December 2022, and as of December 31, 2022, we had satisfied all delivery obligations thereunder.

For CpG 1018 adjuvant reserved for Clover under the CEPI Agreement, Clover is obligated to pay us the purchase price upon the earliest of (i) the true-up exercise defined in the Clover Supply Agreement, (ii) within a specified period after Clover delivers Clover Product to a customer, or (iii) Clover's receipt of payment for Clover Product from a customer. When we transfer control of CpG 1018 adjuvant that is reserved under the CEPI Agreement, we recognize product revenue and a corresponding contract asset as our right to consideration is contingent on something other than the passage of time, as outlined above.

Approximately $71.3 million relating to future amounts receivable representing a contract asset from Clover in connection with the CEPI Agreement is classified as other assets (long term) as of March 31, 2024. The classification as long term reflects the timing of expected utilization of CpG 1018 adjuvant for Clover Product expected to be sold under the CEPI Agreement. Corresponding Advance Payments of $60.3 million relating to Clover are recorded in CEPI accrual long-term in our condensed consolidated balance sheets as of March 31, 2024. These Advance Payments may be repaid using cash collected from Clover or forgiven in accordance with the CEPI Agreement. We had no accounts receivable balance from Clover as of March 31, 2024 and December 31, 2023.

In July 2021, we entered into an agreement (together with subsequent amendments, the "Bio E Supply Agreement") with Biological E. Limited ("Bio E"), for the commercial supply of CpG 1018 adjuvant, for use with Bio E's subunit COVID-19 vaccine candidate, CORBEVAX™. Under the Bio E Supply Agreement, Bio E previously committed to purchase specified quantities of CpG 1018 adjuvant at pre-negotiated prices pursuant to the CEPI Agreement, for use in Bio E's commercialization of its CORBEVAX vaccine. The Bio E Supply Agreement also provided terms for Bio E to order additional quantities of CpG 1018 adjuvant beyond the quantities reserved by CEPI. In June 2022 and October 2022, we entered into two amendments to the Bio E Supply Agreement (the "Bio E Amendment No. 1" and the "Bio E Amendment No. 2," respectively, together the "Bio E Amendments"). The Bio E Amendments primarily established: (i) a new payment schedule for certain outstanding invoices related to the CEPI product to be the earlier of December 31, 2022, or receipt of certain amounts by Bio E from the Government of India in connection with their advance purchase agreement for CORBEVAX, and (ii) further modified the scope of the Bio E Supply Agreement, by reducing certain quantities of CpG 1018 adjuvant to be delivered. The terms and conditions of the Bio E Supply Agreement were operative through December 2022, and as of December 31, 2022, we had satisfied all delivery obligations thereunder.

As of March 31, 2024, we had no net accounts receivable balance from Bio E. During the first quarter of 2023, we recorded an allowance for doubtful accounts of $12.3 million, which was determined by assessing changes in Bio E's credit risk, contemplation of ongoing negotiations relating to Bio E Amendment No. 3 (defined below), and Bio E's dependence on cash collections from the

Government of India, which were delayed and significantly reduced in connection with the overall reduction in demand for CORBEVAX from the Government of India.

On April 26, 2023, we entered into a third amendment to the Bio E Supply Agreement (the "Bio E Amendment No. 3"), and on April 27, 2023, we entered into the CEPI-Bio E Assignment Agreement. Pursuant to the CEPI-Bio E Assignment Agreement, CEPI forgave the entirety of remaining amounts outstanding relating to a liability for Advance Payments of $47.4 million (the "Bio E CEPI Advance Payments") for CpG 1018 Materials allocated to Bio E, and assumed our previous rights to collect $47.4 million of Bio E accounts receivable. Pursuant to the Bio E Amendment No. 3, we collected $14.5 million from Bio E (including $13.5 million in April 2023 and $1.0 million in August 2023). Accordingly, as of March 31, 2024, the CEPI-Bio E Assignment Agreement resulted in: (i) no net accounts receivable balance, and (ii) the derecognition of $47.4 million CEPI accrual in connection with the Bio E CEPI Advance Payments. The Bio E Amendment No. 3 provides for additional future payment of either $5.5 million in the event that Bio E receives at least $125.0 million, or $12.3 million in the event that Bio E receives at least $250.0 million in future payments from the Government of India associated with its CORBEVAX product on or before August 15, 2025. These additional amounts are not considered collectible until the achievement of these future milestones.

Past performance is not a reliable indicator of future performance, however, and future revenue and associated profit or loss may therefore vary significantly. Specifically, as our CpG 1018 adjuvant customers have purchased a significant quantity of CpG 1018 adjuvant as part of their initial COVID-19 vaccine development inventory, we currently expect minimal to no CpG 1018 adjuvant revenue for the remainder of 2024 associated with these arrangements. See Note 6 - Collaborative Research Development and License Agreements, in the accompanying notes to the unaudited condensed consolidated financial statements included in Part I, Item 1, "Financial Statements (unaudited)" of this Quarterly Report on Form 10-Q.

Other

In May 2021, we issued $225.5 million aggregate principal amount of 2.50% convertible senior notes due 2026 (the "Convertible Notes") in a private placement. Total proceeds from the issuance of the Convertible Notes, net of debt issuance and offering costs of $5.7 million, were $219.8 million. We used $190.2 million of the net proceeds to repay, in full, our outstanding debt and other obligations under our previous loan agreement with CRG Servicing LLC ("Loan Agreement") and $27.2 million of the net proceeds to pay the costs of capped call transactions (the "Capped Calls").

In connection with the issuance of the Convertible Notes, we entered into the Capped Calls with one of the initial purchasers and other financial institutions, totaling $27.2 million. The Capped Calls have an initial strike price and an initial cap price of $10.47 per share and $15.80 per share, respectively, subject to certain adjustments under the terms of the Capped Calls. The Capped Calls are freestanding and are considered separately exercisable from the Convertible Notes. The Capped Calls are expected to offset the potential dilution to our common stock as a result of any conversion of the Convertible Notes, subject to a cap based on the cap price.

Seasonality

HEPLISAV-B is currently our only revenue-producing product. We believe that HEPLISAV-B product revenue is, and will likely continue to be, subject to seasonal variations. Specifically, HEPLISAV-B product revenue has generally been, and will likely continue to be, lower in the fourth quarter of our fiscal year compared to the third quarter due to holiday schedules and increased focus by healthcare providers on respiratory disease vaccines, including vaccines for influenza, COVID-19 and respiratory syncytial virus, during the fall and winter months.

Critical Accounting Estimates

We prepare our unaudited condensed consolidated financial statements in accordance with U.S. generally accepted accounting principles. In doing so, we are required to make estimates and assumptions. Our critical accounting estimates are those estimates that involve a significant level of uncertainty at the time the estimate was made, and changes in them have had or are reasonably likely to have a material effect on our financial condition or results of operations. Actual results could differ materially from our estimates. We base our estimates on past experience and other assumptions that we believe are reasonable under the circumstances, and we evaluate these estimates on an ongoing basis.

We believe that there have been no significant changes in our critical accounting policies during the three months ended March 31, 2024, as compared with those disclosed in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2023.

Results of Operations

Revenues

Revenues consist of amounts earned from product sales and other revenues. Product revenue, net, consists of sales of HEPLISAV-B.

Revenue from HEPLISAV-B product sales is recorded at the net sales price, which includes estimates of product returns, chargebacks, discounts, rebates and other fees. We sell our CpG 1018 adjuvant to our collaboration partners for use in their development and/or potential commercialization of COVID-19 vaccines. 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.

The following is a summary of our revenues (in thousands, except for percentages):

	Three Months Ended March 31,		Increase (Decrease) from 2023 to 2024	
Revenues:	**2024**	**2023**	**$**	**%**
HEPLISAV-B	$ 47,845	$ 43,451	$ 4,394	10 %
Total product revenue, net	47,845	43,451	4,394	10 %
Other revenue	2,945	3,474	(529)	(15)%
Total revenues	$ 50,790	$ 46,925	$ 3,865	8 %

HEPLISAV-B product revenue increased by $4.4 million for the three months ended March 31, 2024 compared to the three months ended March 31, 2023. Approximately $1.6 million of the increase was due to higher volume driven by continued improvement in market share, particularly in the integrated delivery networks and retail segments, and growth in the U.S. hepatitis-B vaccine market related to the Advisory Committee on Immunization Practices ("ACIP") universal recommendation. Approximately $2.8 million of the increase was due to higher net sales price. Additionally, approximately $1.1 million of total HEPLISAV-B product revenue, net was related to non-U.S. sales.

Other revenue for the three months ended March 31, 2024 primarily consists of $2.8 million revenue from our agreement with the DoD.

Cost of Sales – Product

Cost of sales - product consists primarily of raw materials, certain fill, finish and overhead costs and any inventory adjustment charges for HEPLISAV-B and inventory costs to produce CpG 1018 adjuvant for our collaboration partners.

The following is a summary of our cost of sales - product (in thousands, except for percentages):

	Three Months Ended March 31,		Increase (Decrease) from 2023 to 2024	
Cost of Sales - Product	**2024**	**2023**	**$**	**%**
HEPLISAV-B	$ 10,966	$ 14,712	$ (3,746)	(25)%
Total cost of sales - product	$ 10,966	$ 14,712	$ (3,746)	(25)%

HEPLISAV-B cost of sales-product decreased by $3.7 million for the three months ended March 31, 2024 compared to the three months ended March 31, 2023. The decrease was primarily due to lower per-unit manufacturing costs as a result of previous process improvements.

HEPLISAV-B cost of sales – product includes a $1.3 million inventory write-off charge recorded during the three months ended March 31, 2024 for one manufacturing batch that did not meet approved release specifications. HEPLISAV-B cost of sales – product included a one-time charge in connection with improvement projects of $2.1 million related to our facility in Düsseldorf recorded during the three months ended March 31, 2023.

Research and Development Expenses

Research and development expenses are tracked on a program-by-program basis and consist primarily of costs incurred for the continued research and development of HEPLISAV-B and CpG 1018 adjuvant, clinical product candidates and preclinical studies, which include but are not limited to, compensation and related personnel costs (which include benefits, recruitment and travel costs), expenses incurred under agreements with contract research organizations, contract manufacturing organizations and service providers that assist in conducting clinical studies and costs associated with our preclinical activities, including engineering activities at our manufacturing facility in Düsseldorf related to functional improvements of our product and process advances, development activities and regulatory operations. We do not allocate stock-based compensation or facility expenses to specific programs because these costs are deployed across multiple programs.

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

	Three Months Ended March 31,		Increase (Decrease) from 2023 to 2024	
Program Expenses:	**2024**	**2023**	**$**	**%**
HEPLISAV-B development	$ 533	$ 1,647	$ (1,114)	(68)%
CpG 1018 adjuvant development	758	507	251	50%
Shingles	3,266	3,749	(483)	(13)%
Tdap	1,592	1,628	(36)	(2)%
Plague (1)	1,322	1,645	(323)	(20)%
Other	2,701	1,815	886	49%
Other research and development expenses:				
Facility costs	691	502	189	38%
Non-cash stock-based compensation	2,665	2,112	553	26%
Total research and development	$ 13,528	$ 13,605	$ (77)	(1)%

(1) In September 2021, we entered into an agreement with the DoD for the development of a recombinant plague vaccine adjuvanted with CpG 1018. Under the agreement, we will conduct a Phase 2 clinical trial and studies combining our CpG 1018 adjuvant with the DoD's rF1V vaccine. We are being fully reimbursed by the DoD for the costs of this study which is recorded in other revenue in our condensed consolidated statements of operations.

Research and development expenses were flat for the three months ended March 31, 2024 compared to the three months ended March 31, 2023.

- HEPLISAV-B development costs decreased due to the non-recurrence of a $1.1 million expense related to an engineering run performed for product testing purposes in 2023.
- CpG 1018 adjuvant development costs increased due to investments in our preclinical and clinical research and collaborations.
- Shingles program costs decreased due to completion of activities related to the Phase 1 clinical trial in 2023, partially offset by costs in 2024 incurred for the initiation of a Phase 1/2 clinical trial, which is anticipated to start before the end of the second quarter of 2024.
- Tdap program costs decreased slightly as we completed the Phase 1 clinical trial in early 2023, and we are continuing to advance the program in 2024, including activities to support a long-term follow-up extension study of the Phase 1 trial.
- Plague program costs decreased compared to the previous year as the Phase 2 clinical trial is nearing completion, as compared to higher costs incurred in early 2023 with our initiation of part 2 of the Phase 2 clinical trial.
- Other program costs increased as we continued to invest in product candidates utilizing our CpG 1018 adjuvant through discovery, preclinical and clinical efforts, including external collaborations.
- Non-cash stock-based compensation expense increased primarily due to incremental headcount to support the advancement of our clinical vaccine programs.

As we continue to progress our clinical-stage pipeline, we expect research and development expenses to continue to represent a substantial portion of our expenses and to continue to increase, both in dollar amount and proportion of total expense, in future years.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist 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 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 expenses (in thousands, except for percentages):

	Three Months Ended March 31,		Increase (Decrease) from 2023 to 2024	
Selling, General and Administrative:	**2024**	**2023**	**$**	**%**
Compensation and related personnel costs	$ 18,659	$ 15,875	$ 2,784	18%
Outside services	12,290	10,833	1,457	13%
Legal costs	1,189	704	485	69%
Facility costs	3,007	2,301	706	31%
Non-cash stock-based compensation	8,920	6,830	2,090	31%
Total selling, general and administrative	$ 44,065	$ 36,543	$ 7,522	21%

Selling, general and administrative expenses increased by $7.5 million for the three months ended March 31, 2024 compared to the three months ended March 31, 2023.

- Compensation and related personnel costs and non-cash stock-based compensation costs increased due to continued investments in headcount and personnel across field sales and administrative functions to support HEPLISAV-B and pipeline growth.
- Outside services increased due to continued investments in targeted commercial and marketing efforts designed to increase HEPLISAV-B market share and maximize the opportunities presented by the ACIP's universal recommendation.
- Legal costs increased due to support for our sublease termination, patent management for our growing pipeline and preclinical assets and increased securities and regulatory compliance.
- Facility costs decreased due to the non-recurrence of a lease maintenance credit in 2023.

We expect our selling, general and administrative expenses to increase in future years in support of the growing market for HEPLISAV-B and growth in our pipeline investments.

Bad Debt Expense

We did not record bad debt expense during the three months ended March 31, 2024. We recorded $12.3 million of bad debt expense during the three months ended March 31, 2023 in connection with the allowance for doubtful accounts of $12.3 million recorded with respect to outstanding accounts receivable from Bio E and relating to CpG 1018 Materials delivered under the Bio E Supply Agreement and CEPI Agreement. The allowance for doubtful accounts was determined by assessing changes in Bio E’s credit risk, contemplation of ongoing negotiations relating to Bio E Amendment No 3, and Bio E's dependence on cash collections from the Government of India, which have been delayed significantly by the Government of India.

Other Income (Expense)

Interest income is reported net of amortization of premiums and discounts on marketable securities and includes realized gains on investments. Interest expense includes the stated interest and accretion of discount of our Convertible Notes. Sublease (expense) income is recognized in connection with our sublease of office and laboratory space.

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

	Three Months Ended March 31,		Increase (Decrease) from 2023 to 2024	
	2024	2023	$	%
Interest income	$ 9,468	$ 6,597	$ 2,871	44 %
Interest expense	$ (1,695)	$ (1,686)	$ 9	1 %
Sublease (expense) income	$ (1,602)	$ 1,598	$ (3,200)	(200)%
Other	$ 101	$ 23	$ 78	339 %

- Interest income increased due to higher average yields and balances in our marketable securities portfolio.
- The change in sublease (expense) income is primarily due to the recognition of a loss of $3.5 million in connection with a sublease termination, partially offset by sublease income of $1.9 million during the three months ended March 31, 2024.

Income Taxes

We are subject to U.S. federal, state and foreign income taxes. For the three months ended March 31, 2024 and 2023, we recorded an income tax benefit of $2.8 million and an income tax provision of $0.6 million, respectively. Our effective tax rate was approximately 24.2% and (2.6)% for the three months ended March 31, 2024 and 2023, respectively. For the three months ended March 31, 2024, the primary difference between the effective tax rate and the federal statutory rate is driven by state and foreign tax expense. For the three months ended March 31, 2023, the primary difference between the effective tax rate and the federal statutory rate is due to the benefit of net operating losses utilized during the periods and the full valuation allowance we established on our federal, state, and certain foreign deferred tax assets.

Liquidity and Capital Resources

As of March 31, 2024, we had $723.5 million in cash and 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 and cash equivalents, and short-term marketable securities as of March 31, 2024, and anticipated revenues from HEPLISAV-B will be sufficient to fund our operations for at least the next 12 months from the date of this filing and in the longer term.

Advanced payments received from CEPI to reserve a specified quantity of CpG 1018 adjuvant are initially accounted for as long-term deferred revenue. When we deliver CpG 1018 adjuvant to CEPI partner(s) or when we receive payment from CEPI partner(s), we reclassify the advanced payments from long-term deferred revenue to accrued liabilities. As of March 31, 2024, we had no CEPI-related net accounts receivable relating to Bio E. CEPI-related accruals and contract assets relating to Clover totaled $60.3 million and $71.3 million as of March 31, 2024, respectively. As of March 31, 2024, the CEPI-related accrual relating to Clover may be repaid using cash to be collected from Clover or forgiven in accordance with the CEPI Agreement.

On April 26, 2023, we entered into the Bio E Amendment No. 3, and on April 27, 2023, we entered into the CEPI-Bio E Assignment Agreement. Pursuant to the CEPI-Bio E Assignment Agreement, CEPI has forgiven the entirety of remaining amounts outstanding relating to the Bio E CEPI Advance Payments for CpG 1018 Materials allocated to Bio E and has assumed our previous rights to collect $47.4 million of Bio E accounts receivable. The CEPI-Bio E Assignment Agreement resulted in no accounts receivable balance from Bio E. Pursuant to the Bio E Amendment No. 3, we collected $13.5 million from Bio E in April 2023 and subsequently collected the remaining $1.0 million in August 2023. The Bio E Amendment No. 3 provides for additional future payment of either $5.5 million in the event that Bio E receives at least $125.0 million, or $12.3 million in the event that Bio E receives at least $250.0 million in future payments from the Government of India associated with its CORBEVAX product on or before August 15, 2025. These additional amounts are not considered collectible until the achievement of these future milestones.

As of March 31, 2024, the aggregate principal amount of our Convertible Notes was $225.5 million, excluding debt discount of $2.5 million. The Convertible Notes bear interest at a rate of 2.50% per year, payable semiannually in arrears on May 15 and November 15 of each year. The Convertible Notes mature on May 15, 2026, unless converted, redeemed or repurchased in accordance with their terms prior to such date. See Note 7 – Convertible Notes, in the accompanying notes to the unaudited condensed consolidated financial statements included in Part I, Item 1, “Financial Statements (unaudited)” of this Quarterly Report on Form 10-Q.

We entered into an at-the-market Sales Agreement with Cowen and Company, LLC (“Cowen”) on August 6, 2020 and an amendment to such agreement on August 3, 2023 (the sales agreement as amended, the “ATM Agreement”). Under the ATM Agreement, we may offer and sell from time to time, at our sole discretion, shares of our common stock having an aggregate offering

price of up to $120.0 million through Cowen as our sales agent. We agreed to pay Cowen a commission of up to 3% of the gross sales proceeds of any common stock sold through Cowen under the ATM Agreement. As of March 31, 2024, we had $120.0 million remaining under the ATM Agreement.

Prior to January 1, 2021, we incurred net losses in each year since our inception. For the three months ended March 31, 2024, we recorded a net loss of $8.7 million. For the three months ended March 31, 2023, we recorded a net loss of $24.3 million. We cannot be certain that sales of our products, and the revenue from our other activities will be sustainable. Further, we expect to continue to incur substantial expenses as we continue investing in commercialization of HEPLISAV-B, advancing our research and development pipeline, and investing in clinical trials and other development. If we cannot 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. Raising additional funds through the issuance of equity or debt securities could result in dilution to our existing stockholders, increased fixed interest 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.

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 or at all. In addition, our ability to raise additional funds may be adversely impacted by deteriorating global economic conditions and the recent or future disruptions to and volatility in the credit and financial markets in the United States and worldwide. 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.

During the three months ended March 31, 2024, we used $16.7 million of cash in our operations, which consisted of a net loss of $8.7 million, $18.2 million of net adjustments from non-cash items, which included stock-based compensation, sublease termination loss, depreciation and amortization, amortization of right-of-use assets, non-cash interest expense, accretion of discounts on marketable securities and inventory write off, and approximately $26.1 million net changes from operating assets and liabilities, which included an increase of $9.8 million in inventories primarily related to higher number of batches produced, and an increase of $4.8 million in prepaid assets and other current assets primarily related to prepaid taxes. By comparison, during the three months ended March 31, 2023, we generated $27.6 million of cash from our operations, which consisted of a net loss of $24.3 million, a $22.2 million of net adjustments from non-cash items, which included stock-based compensation, depreciation and amortization, amortization of right-of-use assets, non-cash interest expense, accretion of discounts on marketable securities and bad debt expense, and approximately $29.7 million net changes from operating assets and liabilities, which included a decrease of $30.3 million in accounts and other receivables, net, as we received outstanding payments from Bio E during 2024. 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 three months ended March 31, 2024, net cash provided by investing activities was $2.8 million compared to $52.3 million of cash used in investing activities for the three months ended March 31, 2023. Cash provided by investing activities during the three months ended March 31, 2024 included $3.6 million of net proceeds from maturities and redemption of marketable securities compared to $51.1 million of net purchases of marketable securities for the three months ended March 31, 2023.

During the three months ended March 31, 2024, net cash used in financing activities was $4.2 million compared to $3.1 million of cash used in financing activities for the three months ended March 31, 2023. Cash used in financing activities for the three months ended March 31, 2024 included $6.7 million for the payments of taxes related to net share settlement of RSUs, partially offset by proceeds received from the exercise of options and from purchases under our employee stock purchase plan for $2.5 million combined. Cash used in financing activities for the three months ended March 31, 2023 included $4.1 million for the payments of taxes related to net share settlement of RSUs, partially offset by proceeds received from the exercise of options and from purchases under our employee stock purchase plan for $1.0 million combined.

Contractual Obligations

As of March 31, 2024, our material non-cancelable purchase commitments for the supply of HEPLISAV-B totaled $40.5 million. Included in the balance of our material non-cancelable purchase and other commitments for the supply of HEPLISAV-B, as of March 31, 2024, our aggregate minimum commitment for the supply of CpG 1018 adjuvant under the Avecia Supply Agreement was $7.4 million for the 12 months following March 31, 2024.

On February 22, 2024, our third-party subtenant obtained the approval of a voluntary petition for relief under Chapter 11 of the United States Code. As a consequence, the sublease agreement with that third-party for the subleased premises (approximately 75,662 square feet of office/laboratory space located at 5959 Horton Street, Emeryville, California) was terminated effective March 7, 2024.

Simultaneously, on March 7, 2024, we entered into a new sublease agreement with a different third-party under similar conditions and for the same premises. See Note 5 - Commitments and Contingencies, in the accompanying notes to the unaudited condensed consolidated financial statements included in Part I, Item 1, “Financial Statements (unaudited)” of this Quarterly Report on Form 10-Q.

There were no other material changes to the contractual obligations previously disclosed in Part II, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Annual Report on Form 10-K for the year ended December 31, 2023.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

During the three months ended March 31, 2023, 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, 2023.

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, as amended (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 Principal Executive Officer 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 Chief Executive Officer and our Interim 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, including, but not limited to, statements concerning our future efforts to obtain regulatory approval, advance our collaborations and our pipeline, manufacture and commercialize approved products, or expectations about our anticipated 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 those in the risk factors that follow. There have been no 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, 2023 that was filed with the Securities and Exchange Commission on February 22, 2024.

RISK FACTOR SUMMARY

Below is a summary of material factors that make an investment in our securities speculative or risky. Importantly, this summary does not address all of the risks and uncertainties that we face. Additional discussion of the risks and uncertainties summarized in this risk factor summary, as well as other risks and uncertainties that we face, can be found in the more detailed discussion that follows this summary, and the below summary is qualified in its entirety by that more complete discussion of such risks and uncertainties. You should carefully consider the risks and uncertainties described herein as part of your evaluation of an investment in our securities:

- HEPLISAV-B has been approved in the United States, the European Union and Great Britain and launched in the United States and Germany, and there is significant competition in these marketplaces. 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.
- Our financial results may vary significantly from quarter to quarter or may fall below the expectations of investors or securities analysts, each of which may adversely affect our stock price.
- We have incurred annual net losses in most years since our inception and could continue to incur significant losses if we do not successfully commercialize HEPLISAV-B, launch new products and/or significant sales of our CpG 1018 adjuvant do not resume. Until we are able to generate significant revenues or achieve profitability through product sales on a consistent basis, we may require substantial additional capital to finance our operations.
- 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 sufficient, or any, revenues and our business will be harmed.
- We rely on our facility in Düsseldorf, Germany and third parties to supply materials or perform processes necessary to manufacture our products 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 products or product candidates in commercial quantities. With respect to HEPLISAV-B, we use a pre-filled syringe presentation of the vaccine and our ability to meet future demand will depend on our ability to manufacture or have manufactured sufficient supply in this presentation.
- As we continue to focus on the commercialization of our HEPLISAV-B vaccine and our CpG 1018 adjuvant, we may encounter difficulties in managing our commercial growth and expanding our operations successfully.
- As we continue to grow as a commercial organization and enter into supply agreements with customers, those supply agreements will have obligations to deliver product that we are reliant upon third parties to manufacture on our behalf.
- We face uncertainty regarding coverage, pricing and reimbursement and the practices of third-party payors, which may make it difficult or impossible to sell certain of our products or product candidates on commercially reasonable terms.
- We are subject to ongoing United States Food and Drug Administration (“FDA”), EU and comparable foreign 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 regulatory issues with HEPLISAV-B. If HEPLISAV-B or any products we develop are not accepted by the market or if regulatory authorities limit our labeling indications, require labeling content that diminishes market uptake of HEPLISAV-B or any other products we develop, or limit our marketing claims, we may be unable to generate significant future revenues, if any.
- HEPLISAV-B and all of our clinical programs rely on oligonucleotide toll-like receptor (“TLR”) agonists. In the event of serious adverse events relating to TLR agonists, we may be required to reduce the scope of, or discontinue, our operations, or reevaluate the viability of strategic alternatives.
- HEPLISAV-B is subject to regulatory 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.
- Regulatory authorities 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.
- Clinical trials for our commercial product and product candidates are expensive and time consuming, may take longer than we expect or may not be completed at all, and have uncertain outcomes.

- A key part of our business strategy for products in development is to establish collaborative relationships to help fund or manage 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.
- As we plan for the broader commercialization of our HEPLISAV-B vaccine and for the requisite capacity to manufacture our CpG 1018 adjuvant, our financial commitments for manufacturing and supply capacity might outpace actual demand for our products.
- We may develop, seek regulatory approval for and market HEPLISAV-B or any other product candidates outside of the U.S., the European Union and Great Britain, requiring a significant additional 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 products or product candidates.
- We rely on clinical research organizations ("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.
- 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 good clinical practices ("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.
- If third parties assert that we have infringed their patents or other proprietary rights or challenge our patents or other proprietary rights, we may become involved in disputes and litigation that would be costly, time consuming and have a negative impact on the commercialization of our current products and delay or prevent development or commercialization of our product candidates.
- Our stock price is subject to volatility, and your investment may suffer a decline in value.
- 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.
- Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt. Conversion of the Convertible Notes (defined below) may dilute the ownership interest of our stockholders or may otherwise depress the price of our common stock.
- 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.
- If our information technology systems or those of third parties upon which we rely, or our data are or were compromised, we could experience adverse consequences resulting from such compromise, including but not limited to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; and other adverse consequences.

Risks Related to our Business and Capital Requirements

HEPLISAV-B has been approved in the United States, the European Union and Great Britain and launched in the United States and Germany, and there is significant competition in these marketplaces. 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 United States and Germany. We have also received approval in the European Union and Great Britain for HEPLISAV-B. Successful commercialization of HEPLISAV-B in these regions or elsewhere will require significant resources and time, and there can be no certainty that we will succeed in these efforts. While our personnel are experienced with respect to marketing of healthcare products, because HEPLISAV-B is our first marketed product, the potential uptake of the product through distribution, and the timing, trajectory, rate and sustainability for growth in sales is unpredictable, and we may not be successful in commercializing HEPLISAV-B in the long term. 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 fail to complete or maintain some or all of these important contracts on favorable terms or at all, or that in a potentially evolving reimbursement environment, our efforts may fail to overcome established competition at favorable pricing, or at all.

We have continued to expand our field sales force. As these teams expand, it will take time for our expanded teams to generate significant sales momentum, if they do so at all. Although we have had some success growing and developing our field sales force following the launch of HEPLISAV-B, there is no guarantee that we will be able to generate sales at the same or improved rates going forward, if at all. In addition, retention of capable sales personnel may be more difficult for us compared to our competitors, as we focus on a single product offering. We must retain our sales force in order for HEPLISAV-B to maintain or expand its commercial presence.

Moreover, we expect that we will need to divert resources in order to successfully market, sell and distribute HEPLISAV-B for use with dialysis patients, one of our targeted patient populations. We do not yet have approval to market the regimen for dialysis. Although the Centers for Disease Control and Prevention ("CDC") and the CDC's Advisory Committee on Immunization Practices ("ACIP") recommend that all adults aged 19-59, including patients on dialysis, receive hepatitis B vaccinations, our predictions of how many of those patients actually receive HEPLISAV-B may be inaccurate.

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 continue recruiting and retaining 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 continue to compete successfully as a relatively new entrant in established distribution channels for vaccine products; and
- whether we will maintain sufficient financial resources to cover the costs and expenses associated with sustaining a capable sales and marketing organization and related commercial infrastructure.

If we are not able to enter new markets ourselves, 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, as we have done for HEPLISAV-B distribution in Germany, the product's 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 these new markets. 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.

Governments influence the price of medicinal products in the European Union through their pricing and reimbursement rules and control of national healthcare systems that fund a large part of the cost of those products to consumers. Even though we have been granted a marketing authorization in the European Union for HEPLISAV-B, we have yet to obtain broad reimbursements and pricing approval in any European Union Member State and rely on our distributor to do so, who currently only markets in Germany. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Other European Union Member States allow companies to fix their own prices for medicines, but monitor and control company profits. Any delay in being able to market our products in the European Union, Great Britain or elsewhere may adversely affect our business and financial condition.

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

Our financial results may vary significantly from quarter to quarter or may fall below the expectations of investors or securities analysts, each of which may adversely affect our stock price.

Numerous factors, many of which are outside our control, may cause or contribute to significant fluctuations in our quarterly and annual operating results. For example, during the year ended December 31, 2022, we recognized $587.7 million of CpG 1018 adjuvant revenue. However, our CpG 1018 adjuvant supply agreements expired at the end of 2022, and as a result, we did not recognize CpG 1018 adjuvant revenue for the year ended December 31, 2023 nor for the quarter ended March 31, 2024. Similarly, if demand for HEPLISAV-B decreases from recent trends for any reason, that could also cause unexpected fluctuations in our quarterly and annual operating results.

The occurrence and timing of any transfer of control of product sold to customers can also be difficult to predict, and the recognition of revenue can vary widely depending on timing of product deliveries and satisfaction of other obligations. As an example, any future revenue we do receive from sales of our CpG 1018 adjuvant has been and will continue to be difficult to predict, if it materializes at all. Historically, we generally required customers to place orders for CpG 1018 adjuvant with at least six months lead time and to make an advance payment toward the finished order. Where we receive such advance payments, we record such payments as deferred revenue until we have delivered the adjuvant and met all criteria to recognize revenue. In accordance with our stated revenue policy, we historically recorded revenue for these contracts upon meeting all of the criteria for revenue recognition under Accounting Standards Codification 606, which includes, among other criteria, the transfer of control for CpG 1018 adjuvant to our customer. During the year ended December 31, 2023, we did not receive any advanced payments from any of our customers to purchase CpG 1018 adjuvant. Our collaborators in many cases have purchase agreements with government agencies. If our collaborators do not receive payment from these agencies for any past or future adjuvant orders, our ability to collect our own receivables may be adversely affected. For example, as of December 31, 2023, we had recorded an allowance for doubtful accounts of $12.3 million in connection with our accounts receivable balance due from Bio E, which was determined by assessing changes in Bio E's credit risk, contemplation of ongoing negotiations relating to an amendment to the supply agreement with Bio E, and Bio E's dependence on cash collections from the Government of India, which have been delayed significantly by the Government of India.

We have in the past, and may in the future, adjust delivery dates, allow cancellations or give concessions on outstanding receivables in certain circumstances to better enable our customers to meet their obligations, which can impact the timing or amount of our revenue recognition, cash collections and transfer of control. For example, in August and October 2022, we entered into amendments to our Supply Agreement, dated June 29, 2021, with Zhejiang Clover Biopharmaceuticals, Inc. and Clover Biopharmaceuticals (Hong Kong) Co., Limited (the "Clover Supply Agreement"), which, among other things, modified the scope of the Clover Supply Agreement to reduce certain quantities of CpG 1018 adjuvant deliverable under the agreement and/or reduce amounts receivable, which we originally intended to deliver in accordance with a purchase order previously issued by Clover, and apply prepayments Clover previously made to us as payment for portions of pending outstanding purchase orders. In January 2023, we entered into another amendment to the Clover Supply Agreement to modify the price per dose of CpG 1018 adjuvant paid by Clover for adjuvant used in finished vaccine doses sold through government procurement programs relating to the booster program promoted by the China National Health Commission. In addition, in April 2023, we entered into the Bio E Amendment No. 3 and the CEPI-Bio E Assignment Agreement, pursuant to which CEPI forgave amounts outstanding relating to the Bio E CEPI Advance Payments and assumed our previous rights to collect $47.4 million of Bio E accounts receivable. Among other things, the CEPI-Bio E Assignment Agreement resulted in no accounts receivable from Bio E, the derecognition of $47.4 million CEPI accrual in connection with the Bio E CEPI Advance Payments, and certain additional future payments contingent on Bio E's receipt of payments from the Government of India associated with its CORBEVAX product on or before August 15, 2025, which may not materialize.

Moreover, our revenue or operating expenses in one period may be disproportionately higher or lower relative to the others due to, among other factors, revenue fluctuations or increases in expenses as we invest in our pipeline. Accordingly, comparing our operating results on a period-to-period basis may not be meaningful, and investors should not rely on any particular past results as an indication of our future performance. If such fluctuations occur or if our operating results deviate from our expectations or the expectations of investors or securities analysts, our stock price may be adversely affected.

We have incurred annual net losses in most years since our inception and could continue to incur significant losses if we do not successfully commercialize HEPLISAV-B, launch new products and/or significant sales of our CpG 1018 adjuvant do not resume.

Prior to January 1, 2021, we had incurred losses in each year since we commenced operations in 1996. We recognized a net loss of $8.7 million for the three months ended March 31, 2024. As of March 31, 2024, we had an accumulated deficit of $939.3 million.

With our investment in the launch and commercialization of HEPLISAV-B in the United States and Germany, we have in the past, and could in the future, incur operating losses. Our expenses have increased substantially as we maintain our HEPLISAV-B commercial infrastructure, including investments in internal infrastructure to support our field sales force and investments in manufacturing and supply chain commitments to maintain commercial supply of HEPLISAV-B. Further, we expect to increase research and development costs as we invest in our pipeline. We are already advancing a multi-program clinical pipeline leveraging CpG 1018 adjuvant to develop improved vaccines in indications with unmet medical needs including a proposed Phase 1/2 clinical trial in shingles, a Phase 1 extension study in Tdap, and a Phase 2 clinical trial for plague in collaboration with and fully funded by the U.S. Department of Defense ("DoD"). We expect research and development costs to increase further if we add additional programs to our pipeline.

Sales of CpG 1018 adjuvant generated significant revenue during the COVID-19 pandemic, but we do not expect such revenues to continue in the long term, and we did not recognize any CpG 1018 adjuvant revenue in the year ended December 31, 2023. The timing for uptake of our products in the U.S. and abroad may further affect costs or losses related to commercialization. Due to the numerous risks and uncertainties associated with developing and commercializing vaccine products or other products we may choose

to offer in the future, we are unable to predict the extent of any future losses or when, if ever, we will become profitable on an annual recurring basis, or, that if we are able to reach consistent profitability that it will be sustainable for any period of time.

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 sufficient, or any, revenues and our business will be harmed.

We compete with pharmaceutical companies, biotechnology companies, academic institutions and research organizations, in developing and marketing vaccines and adjuvants. For example, HEPLISAV-B competes in the U.S. with established hepatitis B vaccines marketed by Merck, GlaxoSmithKline plc ("GSK") and VBI Vaccines Inc. ("VBI"), and with vaccines from those companies as well as several additional established pharmaceutical companies who market abroad. There are also modified schedules of conventional hepatitis B vaccines for limited age ranges that are approved in the United States, the European Union and Great Britain. Competition in European markets could affect our success or the success of our distributor in that market as well. In addition, HEPLISAV-B competes against Twinrix, a bivalent vaccine marketed by GSK for protection against hepatitis B and hepatitis A.

We are also in competition with companies developing vaccines and vaccine adjuvants, generally including, among others, GSK, Pfizer, Inc., Sanofi S.A., Merck, Bavarian Nordic A/S, Emergent BioSolutions, Inc., Novavax, Inc., Medicago Inc., Valneva, AstraZeneca plc, Moderna, Inc., Johnson & Johnson, VBI, BioNTech SE and Curevo Vaccine. We will likely compete with several of these companies in the hepatitis space, shingles space, Tdap space and other spaces occupied by any other product candidates we ultimately choose to advance through our pipeline in the future.

Products in our clinical pipeline, if approved, will also face competition from competitors who have competing clinical programs or already approved products. Existing and potential competitors or other market participants 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 properly manage our business, obtain financing as needed, enter into collaborative arrangements, advance or sell our product candidates or generate revenues.

We rely on our facility in Düsseldorf, Germany and third parties to supply materials or perform processes necessary to manufacture our products 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 products or product candidates in commercial quantities. With respect to HEPLISAV-B, we use a pre-filled syringe presentation of the vaccine and our ability to meet future demand will depend on our ability to manufacture or have manufactured sufficient supply in this presentation.

We rely on our facility in Düsseldorf and third parties to perform the multiple processes involved in manufacturing hepatitis B surface antigen for use in HEPLISAV-B, the combination of the oligonucleotide and the antigens, and formulation, fill and finish. We may continue to do the same for any additional products we might add in the future through natural internal expansion of our pipeline, or in transactions with an external third-party or parties. The FDA approved our pre-filled syringe 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 ourselves, and rely on a contract manufacturer to do so. Our contract manufacturer is the only approved provider that we have, and there can be no assurance that we or they can successfully manufacture sufficient quantities of pre-filled syringes in compliance with good manufacturing practice ("GMP") in order to meet market demand, whether because of problems with our supplier's own operations, operations of its sub-suppliers, issues with downstream supply chains or otherwise. If our contract manufacturer is unable to source components needed to complete fill and finish of our pre-filled syringes, we may be required to identify a second source which would have associated costs and regulatory requirements. Qualifying a second source could take more than a year to accomplish. If we are unable to do all this, on a timely basis or at all, our HEPLISAV-B sales could be materially and adversely impacted.

Historically, we have also relied on a limited number of suppliers to produce oligonucleotides for clinical trials and a single supplier to produce (i) our CpG 1018 adjuvant for manufacture of HEPLISAV-B and for sale to our collaborators and (ii) our pre-filled syringe presentation. In 2021, we qualified a second supplier to manufacture CpG 1018 adjuvant for our COVID business. If we are unable to maintain our existing suppliers for CpG 1018 adjuvant, we would have to establish an alternate qualified manufacturing capability ourselves, which would result in significant additional operating costs and delays in manufacturing HEPLISAV-B, or CpG 1018 adjuvant, and developing and commercializing our, and potentially our collaborators', product candidates. 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 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 our products or our and our collaborators' product candidates and could result in significant expense.

As we continue to focus on the commercialization of our HEPLISAV-B vaccine and our CpG 1018 adjuvant, 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, collaboration partners, wholesalers and hospital customers. Future growth will impose significant added responsibilities on our organization, in particular on management. Our future financial performance and our ability to successfully commercialize our HEPLISAV-B vaccine and CpG 1018 adjuvant or any new products, 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, retain and integrate additional management, administrative and sales and marketing personnel, or secure sufficient or timely supply from third party service and product providers. Any failure to accomplish any of these activities could prevent us from successfully increasing or maintaining the same level of commercial growth as we have seen in the past.

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

Even if we obtain regulatory approval for our product candidates, such as our U.S., European Union and Great Britain approvals of HEPLISAV-B, 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 products;
- 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 efforts;
- 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 authorities 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 products or product candidates, or marketing efforts are restricted by regulatory limits, our ability to generate revenue could be significantly impaired.

As we continue to grow as a commercial organization and enter into supply agreements with customers, those supply agreements will have obligations to deliver product that we are reliant upon third parties to manufacture on our behalf.

As our commercial business begins to expand in connection with commercial sales of HEPLISAV-B or CpG 1018 adjuvant, as applicable, the contracts we enter into with our customers will generally carry delivery obligations that require us to deliver product in certain quantities and meet certain quality thresholds, among other things, all within specified timeframes. If, for any reason, whether due to reliance on third-party manufacturers or otherwise, we are unable to deliver timely, compliant products to our customers in quantities that meet our contractual obligations, we could be subject to lost revenue, contractual penalties, suits for damages, harm to our reputation or other problems that could materially and adversely affect our business. To the extent we add new products in the future, these risks could be exacerbated by the added complexity of managing multiple product lines.

We face uncertainty regarding coverage, pricing and reimbursement and the practices of third-party payors, which may make it difficult or impossible to sell certain of our products 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 we believe 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. Reimbursement or pricing in jurisdictions outside the U.S. may be less favorable. Thus, there can be no assurance that HEPLISAV-B will achieve and sustain stable pricing and favorable reimbursement. Even if favorable coverage and reimbursement status is attained for one or more products for which we or our collaborators receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future. 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 HEPLISAV-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, the willingness of third-party payors to reimburse for our products is uncertain. We will have to charge a price for HEPLISAV-B or any other products we commercialize that is sufficient to enable us to recover our considerable investment in product development and our operating costs. Further, coverage policies and third-party reimbursement rates may change at any time. Therefore, even if favorable coverage and reimbursement status is attained, less favorable coverage policies and reimbursement rates may be implemented in the future. Adequate third-party payor reimbursement may not be available to enable us to maintain price levels sufficient to achieve or maintain profitability, and such unavailability could harm our future prospects and reduce our stock price.

The United Kingdom ("UK") and many EU Member States periodically review their reimbursement procedures for medicinal products, which could have an adverse impact on reimbursement status. We expect that legislators, policymakers and healthcare insurance funds in European countries will continue to propose and implement cost-containing measures, such as lower maximum prices, lower or lack of reimbursement coverage and incentives to use cheaper, usually generic, products as an alternative to branded products, and/or branded products available through parallel import to keep healthcare costs down. Moreover, in order to obtain reimbursement for our products in some European countries, including some EU Member States, we may be required to compile additional data comparing the cost-effectiveness of our products to other available therapies. This Health Technology Assessment ("HTA") of medicinal products is becoming an increasingly common part of the pricing and reimbursement procedures in some EU Member States, including those representing the larger markets. The HTA process is the procedure to assess therapeutic, economic and societal impact of a given medicinal product in the national healthcare systems of the individual country. The outcome of an HTA will often influence the pricing and reimbursement status granted to these medicinal products by the competent authorities of individual EU Member States. The extent to which pricing and reimbursement decisions are influenced by the HTA of the specific medicinal product currently varies between EU Member States.

In December 2021, Regulation No 2021/2282 on HTA amending Directive 2011/24/EU, was adopted in the EU. This Regulation, which entered into force in January 2022 and will apply as of January 2025, is intended to boost cooperation among EU Member States in assessing health technologies, including new medicinal products, and providing the basis for cooperation at EU level for joint clinical assessments in these areas. The Regulation foresees a three-year transitional period and will permit EU Member States to use common HTA tools, methodologies, and procedures across the EU, working together in four main areas, including joint clinical assessment of the innovative health technologies with the most potential impact for patients, joint scientific consultations whereby developers can seek advice from HTA authorities, identification of emerging health technologies to identify promising technologies early, and continuing voluntary cooperation in other areas. Individual EU Member States will continue to be responsible for assessing non-clinical (e.g., economic, social, ethical) aspects of health technologies, and making decisions on pricing and reimbursement. If we are unable to maintain favorable pricing and reimbursement status in EU Member States for product candidates that we may successfully develop and for which we may obtain regulatory approval, any anticipated revenue from and growth prospects for those products in the EU could be negatively affected. In light of the fact that the United Kingdom has left the EU, Regulation No 2021/2282 on HTA will not apply in the United Kingdom. However, the UK Medicines and Healthcare products Regulation Agency ("MHRA") is working with UK HTA bodies and other national organizations, such as the Scottish Medicines Consortium ("SMC"), the National Institute for Health and Care Excellence ("NICE"), and the All-Wales Medicines Strategy Group, to introduce new pathways supporting innovative approaches to the safe, timely and efficient development of medicinal products. For example, in March 2021, the UK introduced the Innovative Licensing and Access Pathways ("ILAP") which brings together the

MHRA, NICE, SMC and the All Wales Therapeutics and Toxicology Centre, to accelerate time to market for certain innovative products.

Legislators, policymakers and healthcare insurance funds in the EU and the United Kingdom may continue to propose and implement cost-containing measures to keep healthcare costs down, particularly due to the financial strain that COVID-19 placed on national healthcare systems of European countries. These measures could include limitations on the prices we would be able to charge for product candidates that we may successfully develop and for which we may obtain regulatory approval or the level of reimbursement available for these products from governmental authorities or third-party payors. Further, an increasing number of EU and other foreign countries use prices for medicinal products established in other countries as "reference prices" to help determine the price of the product in their own territory. Consequently, a downward trend in prices of medicinal products in some countries could contribute to similar downward trends elsewhere.

We are subject to ongoing FDA, EU and comparable foreign 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 regulatory issues with HEPLISAV-B.

Our HEPLISAV-B regulatory approval in the United States is subject to certain post-marketing obligations and commitments to the FDA. For example, we were required to conduct an observational comparative study of HEPLISAV-B to Engerix-B to assess occurrence of acute myocardial infarction ("AMI"). This post-marketing study was initiated in August 2018 and concluded in November 2020. While the results of the study, announced in April 2021, indicated that there was no increased risk of AMI associated with vaccination with HEPLISAV-B compared to Engerix-B, we may be required to conduct further studies on HEPLISAV-B or our other product candidates in the future. Also, we received data from the autoimmune portion of our observational study, and the data indicated no association between HEPLISAV-B and any of the studied autoimmune diseases. In addition, we conducted a pregnancy registry study to provide information on outcomes following pregnancy exposure to HEPLISAV-B and submitted the information to the FDA in December 2023. Failure to complete the study to the satisfaction of the FDA could result in withdrawal of our biologics license application approval, which would have a material adverse effect on our business, results of operations, financial condition and prospects. As we advance our pipeline, similar studies may be required for other candidates. The results of post-marketing studies may also result in additional warnings or precautions for the HEPLISAV-B label or labels of any future products, if authorized, or expose additional safety concerns that may result in product liability and withdrawal of a product or products from the market, any of which would have a material adverse effect on our business, results of operations, financial condition and prospects.

Similar post-marketing obligations and commitments exist in the European Union and Great Britain. For example, we are required to submit periodic safety update reports to the European Medicines Agency ("EMA") and the MHRA and to keep an up-to-date risk management plan that takes into account new information that may lead to a significant change in the risk/benefit profile of HEPLISAV-B. In addition, in accordance with our EU marketing authorization for HEPLISAV-B, HEPLISAV-B is subject to additional monitoring, meaning that it is monitored more intensively than other medicinal products. We may have similar obligations for future products if and when approved. Non-compliance with European Union or United Kingdom requirements regarding safety monitoring or pharmacovigilance can result in significant financial penalties.

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 in the United States, the European Union and Great Britain. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with current good manufacturing practices ("cGMP"), good clinical practices ("GCP"), International Conference on Harmonization guidelines, and good laboratory practices ("GLP"). If we are not able to meet and maintain regulatory compliance for HEPLISAV-B or any future product, if authorized, we may lose marketing approval and be required to withdraw our product. Withdrawal of our product would have a material adverse effect on our business.

HEPLISAV-B and all of our clinical programs rely on oligonucleotide TLR agonists. In the event of serious adverse events relating to TLR agonists, we may be required to reduce the scope of, or discontinue, our operations, or reevaluate the viability of strategic alternatives.

Our programs, including HEPLISAV-B, incorporate TLR9 agonist CpG oligonucleotides. If any of our product candidates in clinical trials or similar products from competitors or collaborators result in serious adverse events, 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 events are found to relate to our TLR agonist as a whole, we may be required to significantly reduce or discontinue our operations.

HEPLISAV-B is subject to regulatory 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 cGMP regulations and other international regulatory requirements. The regulations require that our products and 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 Biologics License Application ("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 or product candidates, 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 products or 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 is 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. Similar requirements and procedures apply outside of the United States.

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 to our stock price.

Regulatory authorities 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 regulatory authorities and requirements and any requests that 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.

Clinical trials for our commercial product and product candidates are expensive and time consuming, may take longer than we expect or may not be completed at all, and have uncertain outcomes.

Clinical trials, including post-marketing studies, to generate sufficient data to meet FDA and other regulatory authority requirements are expensive and time consuming, may take more time to complete than expected, may not be completed at all, and may not have favorable outcomes if they are completed. 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.

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"), Ethics Committee or regulatory approval to conduct a clinical trial at a prospective site, unexpected adverse events and shortages of available vaccine or component 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. Failure of one or more product candidates to successfully advance through to approval and licensure could result in the loss of unrecoverable costs expended and impact our ability to generate future revenue from such products, either of which, or both of which, could have an adverse impact on our business.

A key part of our business strategy for products in development is to establish collaborative relationships to help fund or manage 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 have and may in the future need to establish collaborative relationships to obtain domestic and/or international sales, marketing, research, development and distribution capabilities for our products or product candidates and our discovery research programs. Failure to obtain a collaborative relationship for those products or product candidates and programs 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 perceived shortage of capital resources may impact the willingness of companies to collaborate with us;
- our contracts for collaborative arrangements are often 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 product candidates, obtain regulatory approvals and successfully manufacture and commercialize the products developed from product 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 intellectual property or other proprietary rights 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. 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.

Even when we are successful in entering into collaboration agreements, collaborations can involve greater uncertainty for us, as we have less control over certain aspects of our collaborative programs than we do over our solely-owned development and commercialization programs, and the financial terms upon which collaborators are 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.

For example, we are working to develop our CpG 1018 adjuvant as a premier vaccine adjuvant through research collaborations, partnerships and supply arrangements. Current relationships and efforts are focused on adjuvanted vaccines for COVID-19, shingles, Tdap, plague and influenza. For some of these relationships, our collaborators have primary responsibility for the development, conduct of clinical trials, and for seeking and obtaining regulatory approval of potential vaccines containing our adjuvant. We have limited or no control over our collaborators' decisions, including the amount and timing of resources that any of these collaborators will dedicate to such activities. In circumstances where our collaborators do not purchase as much adjuvant as we anticipate or they delay placing orders or taking certain deliveries, there can be a negative impact on our revenue recognition. If a collaborator fails to conduct collaborative activities successfully, the development and commercialization of a vaccine could be delayed or may not occur at all. Lastly, the ability of our collaborators to deliver, sell and collect on receivables is not guaranteed and this could, in turn, impact our own ability to collect receivables.

Until we are able to generate significant revenues or achieve profitability through product sales on a consistent basis, we may require substantial additional capital to finance our operations.

As of March 31, 2024, we had $723.5 million in cash and cash equivalents, and marketable securities. Prior to January 1, 2021, we incurred net losses in each year since our inception. We recorded a net loss of $8.7 million for the three months ended March 31, 2024. As of March 31, 2024, we had an accumulated deficit of $939.3 million. We expect to continue to incur substantial expenses as we continue to invest in the commercialization and development of HEPLISAV-B and our CpG 1018 adjuvant, clinical trials for our pipeline candidates, and other development. If we cannot generate a sufficient amount of revenue from product sales, we may need to finance our operations through strategic alliance and licensing arrangements and/or future public or private debt and equity financings. 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, our 2.50% convertible senior notes due 2026 ("Convertible Notes") and other securities we issue in the future may have rights senior to those of our common stock and could include covenants that restrict our operations.

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. In addition, our ability to raise additional funds may be adversely impacted by deteriorating global economic conditions and disruptions to and volatility in the credit and financial markets in the United States and worldwide. 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 and the value of our stock.

As we plan for the broader commercialization of our HEPLISAV-B vaccine and for the requisite capacity to manufacture our CpG 1018 adjuvant, our financial commitments for manufacturing and supply capacity might outpace actual demand for our products.

As we manage our production capabilities for HEPLISAV-B and CpG 1018 adjuvant to support recent market share gains and other initiatives, we have been, and in the future could be, required to make significant financial commitments at our contract manufacturing organizations ("CMOs"), including minimum purchase commitments and prepayments of purchase orders to facilitate the procurement of raw materials and the incurrence of various manufacturing costs. Because of minimum or advance purchase commitments and uncertainty about the expected demand for HEPLISAV-B or CpG 1018 adjuvant, the financial commitments we make to our CMOs to support manufacturing may not be recovered in their entirety, or at all, if our customers do not ultimately purchase from us at expected volumes, or other concessions are made by us. Capacity reservation fees are generally not recoverable if we do not use the capacity we have reserved as a result of lower than expected demand, or otherwise. Similarly, prepayments of purchase orders may not be recoverable if we do not ultimately require the entire volume subject to the applicable purchase order. As a result, we could end up making financial commitments that we never recover if demand for HEPLISAV-B or CpG 1018 adjuvant does not materialize in the volumes we are expecting or at all. This may require us to record certain charges or write-offs in one or more fiscal periods, which in turn could result in significant, unexpected fluctuations in our quarterly and annual operating results, and potentially have a material adverse effect on our results of operations, and financial condition.

For example, in August and October 2022, we entered into amendments to the Clover Supply Agreement, which, among other things, modified the scope of the Clover Supply Agreement to reduce certain quantities of CpG 1018 adjuvant that we originally intended to deliver in accordance with a purchase order previously issued by Clover. As a result of the concessions made in the amendments to the Clover Supply Agreement, prior financial commitments made to certain CMOs to manufacture quantities of CpG

1018 adjuvant to fulfill the original Clover purchase order, and reduced demand for CpG 1018 adjuvant, we recorded write-offs of $13.9 million of CpG 1018 adjuvant raw materials inventory and $20.4 million of finished goods inventory during the year ended December 31, 2022. Relating to our Bio E Supply Agreement, we entered into an amendment and an assignment agreement in April 2023, pursuant to which (i) CEPI forgave the entirety of remaining amounts outstanding relating to the Bio E CEPI Advance Payments for CpG 1018 Materials allocated to Bio E and has assumed our previous rights to collect $47.4 million of Bio E accounts receivable, (ii) we collected $14.5 million from Bio E, resulting in no accounts receivable balance as of December 31, 2023 and March 31, 2024, and (iii) we derecognized a $47.4 million CEPI accrual in connection with the Bio E CEPI Advance Payments. It is possible we may have similar write-offs in the future.

We may develop, seek regulatory approval for and market HEPLISAV-B or any other product candidates outside of the U.S., the European Union and Great Britain, requiring a significant additional 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 products or product candidates.

We may seek to introduce HEPLISAV-B, or any other product candidates we may develop, to various additional markets in or outside of the U.S., the European Union and Great Britain. Developing, seeking regulatory approval for and marketing our product candidates in or outside of the U.S., the European Union and Great Britain in jurisdictions where we don't currently have approval could impose substantial costs, impose burdens on our personnel, and divert 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;
- foreign tax compliance and 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 pursue commercialization of HEPLISAV-B outside the United States, the European Union and Great Britain, 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, we may not receive approval in one or more jurisdictions, even if we undertake these efforts.

The results of clinical trials conducted to support regulatory approval in one or more jurisdictions, and any failure or delay in obtaining regulatory approval in one or more jurisdictions, may have a negative effect on the regulatory approval process in other jurisdictions, including our existing regulatory approval in the United States, the European Union and Great Britain. 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 products or product candidates, which would impair our ability to generate revenues.

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 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 we or 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 regulatory authorities, IRBs and the Ethics Committees 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 authorities 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 regulatory authorities 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 or Ethics Committee 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 product, lack of efficacy or personal issues, or who are otherwise unavailable for 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 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.

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. Even if we complete all such activities without issue, final results may not actually support approval of a particular product candidate.

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

We have incurred significant net operating losses ("NOLs") during our history, and despite prior profitability, may not be able to achieve sustained profitability over the long term. Unused U.S. federal NOLs for taxable years beginning before January 1, 2018 may be carried forward to offset future taxable income, if any, until such unused NOLs expire. Under legislation enacted in 2017, as modified by legislation enacted in 2020, U.S. federal NOLs incurred in taxable years beginning after December 31, 2017 can be carried forward indefinitely, but the deductibility of such U.S. federal NOLs in taxable years beginning after December 31, 2020 is limited to 80% of taxable income. It is uncertain if and to what extent various states will conform to the aforementioned U.S. tax law provisions.

As of December 31, 2023, we had U.S. federal and state NOL carryforwards of $376.6 million and $283.9 million, respectively. Of the $376.6 million U.S. federal NOL carryforwards, $353.5 million may be carried forward indefinitely with utilization limited to 80% of taxable income, and the remainder will begin to expire in 2024. The state NOL carryforwards will begin to expire in 2024.

In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an "ownership change," which is generally defined as one or more stockholders or groups of stockholders who own at least 5% of our stock increasing their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period, the corporation's ability to use its pre-change NOL carryforwards to offset its post-change income or taxes may be limited. We have experienced ownership changes as a result of shifts in our stock ownership in the past, and in the future it is possible that we may be deemed to have experienced additional ownership changes as a result of shifts in our stock ownership, some of which may be outside of our control. This could limit the amount of NOLs that we can utilize annually to offset future taxable income or tax liabilities. Subsequent ownership changes and changes to the U.S. tax rules in respect of the utilization of NOLs may further affect the limitation in future years. In addition, at the state level, there may be periods during which the use of NOLs is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed.

Tax law changes could adversely affect our business and financial condition.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could adversely affect our business operations and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, legislation informally titled the Tax Cuts and Jobs Act of 2017, the 2020 Coronavirus Aid, Relief, and Economic Security Act, and the 2022 Inflation Reduction Act enacted many significant changes to the U.S. tax laws. Future guidance from the Internal Revenue Service and other tax authorities with respect to such legislation may affect us, and certain aspects of the foregoing tax legislation could be repealed or modified in future legislation. In addition, it is uncertain if and to what extent various states will conform to such legislation or any newly enacted federal tax legislation. Changes in corporate tax rates, the realization of net deferred tax assets relating to our operations, the taxation of foreign earnings, and the deductibility of expenses under past or future reform legislation could have a material impact on the value of our deferred tax assets, could result in significant one-time charges, and could increase our future U.S. tax expense.

We are subject to stringent and evolving U.S. and foreign laws, regulations, and rules, contractual obligations, industry standards, policies and other obligations related to data privacy and security. Our actual or perceived failure to comply with such obligations could lead to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse business consequences.

In the ordinary course of business, we process personal data and other sensitive information, including our proprietary and confidential business data, trade secrets, intellectual property, data we may collect about trial participants in connection with clinical trials, and other sensitive data. Our data processing activities subject us to numerous data privacy and security obligations, such as various laws, regulations, guidance, industry standards, external and internal privacy and security policies, contracts, and other obligations that govern the processing of personal data by us and on our behalf.

In the United States, federal, state, and local governments have enacted numerous data privacy and security laws, including data breach notification laws, personal data privacy laws, consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), and other similar laws (e.g., wiretapping laws). In the past few years, numerous U.S. states—including California, Virginia, Colorado, Connecticut, and Utah—have enacted comprehensive privacy laws that impose certain obligations on covered businesses, including providing specific disclosures in privacy notices and affording residents with certain rights concerning their personal data. As applicable, such rights may include the right to access, correct, or delete certain personal data, and to opt-out of certain data processing activities, such as targeted advertising, profiling, and automated decision-making. The exercise of these rights may impact our business and ability to provide our products and services. Certain states also impose stricter requirements for processing certain personal data, including sensitive information, such as conducting data privacy impact assessments. These state laws allow for statutory fines for noncompliance. For example, the California Consumer Privacy Act of 2018, as amended by the California Privacy Rights Act of 2020 ("CPRA") (collectively, "CCPA") requires businesses to provide specific disclosures in privacy notices and honor requests of California residents to exercise certain privacy rights. The CCPA provides for civil penalties of up to $7,500 per intentional violation and allows private litigants affected by certain data breaches to recover significant statutory damages. Similar laws are being considered in several other states, as well as at the federal and local levels. These developments may further complicate compliance efforts and may increase legal risk and compliance costs for us and the third parties upon whom we rely.

Outside the United States, an increasing number of laws, regulations, and industry standards may govern data privacy and security. For example, the European Union's General Data Protection Regulation ("EU GDPR"), the United Kingdom's General Data Protection Regulation ("UK GDPR"), Brazil's General Data Protection Law (Lei Geral de Proteção de Dados Pessoais, or "LGPD") (Law No. 13,709/2018), and China's Personal Information Protection Law ("PIPL") impose strict requirements for processing personal data. For example, under the EU GDPR, companies may face temporary or definitive bans on data processing and other corrective actions; fines of up to 20 million Euros or 4% of annual global revenue, whichever is greater; or private litigation related to processing of personal data brought by classes of data subjects or consumer protection organizations authorized at law to represent their interests.

In addition, we may be unable to transfer personal data from the EEA and other jurisdictions to the United States or other countries due to data localization requirements or limitations on cross-border data flows. Although there are various mechanisms that may be used in some cases to lawfully transfer personal data to the United States or other countries, these mechanisms are subject to legal challenges and may not be available to us. An inability or material limitation on our ability to transfer personal data to the United States or other countries could materially impact our business operations.

In the ordinary course of business, we may transfer personal data from the EEA and other jurisdictions to the United States or other countries. We may be unable to transfer personal data from Europe and other jurisdictions to the United States or other countries due to data localization requirements or limitations on cross-border data flows. Europe and other jurisdictions have enacted laws requiring data to be localized or limiting the transfer of personal data to other countries. In particular, the EEA and the United Kingdom have significantly restricted the transfer of personal data to the United States and other countries whose privacy laws it believes are inadequate. Other jurisdictions may adopt similarly stringent interpretations of their data localization and cross-border data transfer laws.

Although there are currently various mechanisms that may be used to transfer personal data from the EEA and UK to the United States in compliance with law, such as the EEA and UK's standard contractual clauses, these mechanisms are subject to legal challenges, and there is no assurance that we can satisfy or rely on these measures to lawfully transfer personal data to the United States.

If there is no lawful manner for us to transfer personal data from the EEA, the UK, or other jurisdictions to the United States, or if the requirements for a legally-compliant transfer are too onerous, we could face significant adverse consequences, including the interruption or degradation of our operations, the need to relocate part of or all of our business or data processing activities to other jurisdictions at significant expense, increased exposure to regulatory actions, substantial fines and penalties, the inability to transfer data and work with partners, vendors and other third parties, and injunctions against our processing or transferring of personal data necessary to operate our business. Additionally, companies that transfer personal data out of the EEA and UK to other jurisdictions, particularly to the United States, are subject to increased scrutiny from regulators, individual litigants, and activist groups. Some

regulators in the EEA have ordered certain companies to suspend or permanently cease certain transfers of data out of Europe for allegedly violating the GDPR's cross-border data transfer limitations.

On October 7, 2022, President Biden signed an Executive Order on "Enhancing Safeguards for United States Signals Intelligence Activities," which implements into United States law the agreement in principle announced in March 2022 on a new EU-U.S. Data Privacy Framework. However, if this new transatlantic data transfer framework is not adopted and we are unable to continue to rely on standard contractual clauses or alternative mechanisms of data transfers from the EEA to the United States, this may materially and adversely affect our business, financial condition, and results of operations.

Additional privacy advocates and industry groups have proposed, and may propose in the future, standards with which we are legally or contractually bound to comply.

In addition to data privacy and security laws, we may be contractually subject to industry standards adopted by industry groups and may become subject to such obligations in the future. We may be subject to contractual obligations and policies related to data privacy and security. We may also be bound by other contractual obligations related to data privacy and security, and our efforts to comply with such obligations may not be successful. For example, certain privacy laws, such as the EU GDPR and UK GDPR, require our customers to impose specific contractual restrictions on their service providers.

Data privacy and security laws are quickly changing, and compliance (and any perceived non-compliance) is costly. Although we endeavor to comply with all applicable data privacy and security obligations, these obligations are quickly changing in an increasingly stringent fashion, creating some uncertainty as to how to comply. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or conflict among jurisdictions. If we or the third parties on which we rely fail, or are perceived to have failed, to address or comply with applicable data privacy and security obligations, we could face significant consequences, including but not limited to, government enforcement actions (e.g., investigations, fines, penalties, audits, inspections, and similar); litigation (including class-related claims); additional reporting requirements and/or oversight; bans on processing personal data; orders to destroy or not use personal data; and imprisonment of company officials.

Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to: loss of customers; interruptions or stoppages in our business operations, including our clinical trials; expenditure of time and resources to defend any claim or inquiry; adverse publicity; or revision or restructuring of our operations.

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 False Claims Act and Civil Monetary Penalties 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, "ACA") which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services, information related to payments and other transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other health care professionals (such as physician assistants and

nurse practitioners), and teaching hospitals, and ownership and investment interests held by such physicians 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 knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and their implementing regulations, which imposes certain requirements on "covered entities," including certain healthcare providers, health plans, and healthcare clearinghouses, and their respective "business associates" that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity as well as their covered subcontractors 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 our 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.

In the U.S., 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 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 significant criminal, civil and administrative penalties, including fines, civil monetary penalties, exclusion from participation in government health care programs (including, in the U.S., Medicare and Medicaid), disgorgement, 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 have applied for, and in some cases have received, grants that, if and when received, may involve pricing or other restrictions.

We have applied for, and in some cases have received, grants from various charitable, philanthropic and other organizations that, if and when received, may come with certain pricing requirements, global access requirements, reporting requirements or other covenants that require us to make the funded product available worldwide and on a nondiscriminatory basis. For example, we received such an initial grant from the Bill and Melinda Gates Foundation in 2020 to help fund the potential scale-up of production of our CpG 1018 adjuvant that may be required in the event the CpG 1018 adjuvant is included in any approved and commercially available vaccine, whether a COVID-19 vaccine or otherwise. Covenants in these types of grants may limit the price we can charge for any funded product and may involve a license to use technology we own that is included in the funded products if we do not comply. Such price limitations or licenses, if invoked, could serve to limit the prices we charge, or our control over the manufacturing and distribution of grant-funded products. Failure to agree to such requirements, may result in us not receiving some or all of the grant.

Enacted or future legislation, including potentially unfavorable pricing regulations or other healthcare reform initiatives, may have an adverse effect on our operations and business.

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 ACA, 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. There have been executive, legal and political challenges to certain aspects of ACA. For example, President Trump signed several executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by ACA. Concurrently, Congress considered legislation that would repeal or repeal and replace all or part of ACA. While Congress has not passed comprehensive repeal legislation, several bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017 included a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." In addition, the 2020 federal spending package permanently eliminated, effective January 1, 2020, the ACA-mandated "Cadillac" tax on high-cost employer-sponsored health coverage and medical device tax and, effective January l, 2021, also eliminated the health insurer tax. The Bipartisan Budget Act of 2018 among other things, amended the ACA, 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." On June 17, 2021, the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. In addition, the ACA has been subject to various health reform measures. For example, on August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 ("IRA") into law, which among other things, extends enhanced subsidies for individuals purchasing health insurance coverage in ACA marketplaces through plan year 2025. The IRA also eliminates the "donut hole" under the Medicare Part D program beginning in 2025 by significantly lowering the beneficiary maximum out-of-pocket cost and through a newly established manufacturer discount program. It is unclear how any such challenges and additional healthcare reform measures by the Biden administration will impact the ACA and our business.

Other legislative changes have also been proposed and adopted since the ACA 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, will remain in effect until 2032 unless additional Congressional action is taken. Additionally, on March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, currently set at 100% of a drug's average manufacturer price, for single source and innovator multiple source drugs, effective January 1, 2024. 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.

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, in July 2021, the Biden administration released an executive order, "Promoting Competition in the American Economy," with multiple provisions aimed at prescription drugs. In response to Biden's executive order, on September 9, 2021, the U.S. Department of Health and Human Services ("HHS") released a Comprehensive Plan for Addressing High Drug Prices that outlines principles for drug pricing reform and sets out a variety of potential legislative policies that Congress could pursue to advance these principles. In addition, the IRA, among other things, (i) directs HHS to negotiate the price of certain drugs and biologics covered under Medicare, and subjects drug manufacturers to civil monetary penalties and a potential excise tax by offering a price that is not equal to or less than the negotiated "maximum fair price" under the law, and (ii) imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation. The IRA permits HHS to implement many of these provisions through guidance, as opposed to regulation, for the initial years. These provisions take effect progressively starting in 2023. On August 29, 2023, HHS announced the list of the first ten drugs that will be subject to price negotiations, although the Medicare drug pricing negotiation program is currently subject to legal challenges. It is currently unclear how the IRA will be effectuated but is likely to have a significant impact on the pharmaceutical industry. Further, in response to the Biden administration's October 2022 executive order, on February 14, 2023, HHS released a report outlining three new models for testing by the Centers for Medicare & Medicaid Services ("CMS") Innovation Center which will be evaluated on their ability to lower the cost of drugs, promote accessibility, and improve quality of care. It is unclear whether the models will be utilized in any health reform measures in the future. Further, on December 7, 2023, the Biden administration announced an initiative to control the price of prescription drugs through the use of

march-in rights under the Bayh-Dole Act. On December 8, 2023, the National Institute of Standards and Technology published for comment a Draft Interagency Guidance Framework for Considering the Exercise of March-In Rights which for the first time includes the price of a product as one factor an agency can use when deciding to exercise march-in rights. While march-in rights have not previously been exercised, it is uncertain if that will continue under the new framework.

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. For example, on January 5, 2024, the FDA approved Florida's Section 804 Importation Program (SIP) proposal to import certain drugs from Canada for specific state healthcare programs. It is unclear how this program will be implemented, including which drugs will be chosen, and whether it will be subject to legal challenges in the United States or Canada. Other states have also submitted SIP proposals that are pending review by the FDA. Any such approved importation plans, when implemented, may result in lower drug prices for products covered by those programs.

Many EU Member States periodically review their reimbursement procedures for medicinal products, which could have an adverse impact on reimbursement status. We expect that legislators, policymakers and healthcare insurance funds in the EU Member States will continue to propose and implement cost-containing measures, such as lower maximum prices, lower or lack of reimbursement coverage and incentives to use cheaper, usually generic, products as an alternative to branded products, and/or branded products available through parallel import to keep healthcare costs down.

We cannot predict the initiatives that may be adopted in the future or the effect any such initiatives may have on our business. However, in the future, there will likely continue to be additional proposals relating to the reform of the U.S. healthcare system, and other equivalent foreign systems, 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.

In connection with our work with the U.S. Department of Defense ("DoD"), we have become a defense contractor, and are therefore subject to additional administrative burdens and control requirements in connection with the maintenance of that relationship.

In September 2021, we entered into an agreement with the DoD relating to the conduct of a clinical trial and studies in connection with the development of an improved plague vaccine. In connection with this agreement, we became subject to new administrative and control requirements, including certain reporting obligations as well as a requirement to develop, implement and maintain an International Traffic in Arms Regulations compliance program, among other things. Further, if our efforts result in an improved plague vaccine and we enter into a supply agreement for finished plague vaccines with the DoD, we expect that such a supply contract would impose additional administrative, control, compliance and other obligations. We have limited experience developing and administering such programs. Development and maintenance of such programs can be burdensome and costly and there can be no guarantee that we will be able to maintain compliance with all of the terms of such an agreement. Failure to comply with these requirements could have a significant reputational or financial impact on our business and on our stock price.

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.

Risks Related to our Intellectual Property

If third parties assert that we have infringed their patents or other proprietary rights or challenge our patents or other proprietary rights, we may become involved in disputes and litigation that would be costly, time consuming and have a negative impact on the commercialization of our current products and delay or prevent development or commercialization of our product candidates.

We may be exposed to future litigation or other dispute with third parties based on claims that our products, 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 and scope of our issued and pending claims. From time to time, we have been, and in the future may become, involved in various administrative proceedings related to our intellectual property which can cause us to incur certain legal expenses. If we become involved in any litigation and/or other administrative 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 or other product candidate, we or our collaborators 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 intellectual property or technologies 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, operations or financial condition.

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 products or product candidates may decrease, and we may be unable to realize any commercial benefit from the development of our products or product candidates.

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, or other disclosures which impact patentability, which may only allow us to obtain relatively narrow patent protection, if any at all. In the U.S., and worldwide, 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. Changes in U.S. patent and ex-U.S. patent laws could diminish the value of patents in general, thereby impairing us and our collaborators' ability to protect our products.

Our HEPLISAV-B vaccine and CpG 1018 adjuvant have no composition of matter patent protection in the United States or elsewhere. We must therefore rely primarily on the protection afforded by method of use patent claims relating to HEPLISAV-B vaccine and the use of CpG 1018 adjuvant in vaccines, and trade secret protection and confidentiality and other agreements to protect our interests in proprietary know-how related to HEPLISAV-B vaccine and CpG 1018 adjuvant. We have three issued U.S. patents relating to certain uses of HEPLISAV-B that are projected to expire in 2032. We have filed patent applications claiming compositions and methods of use of CpG 1018 adjuvant for COVID-19 and other vaccines, but we cannot provide any assurances that we will receive an issued patent for any of these patent applications or that, if issued, any of these patents will provide adequate protection for any intended use of CpG 1018 adjuvant in vaccines. In addition, we are or may be subject to co-ownership of the underlying intellectual property with our collaborators and, therefore, may not be the sole owner and be in a position to diligently control patent prosecution, or enforce our rights. If we are unable to adequately obtain patent protection or enforce our other proprietary rights relating to CpG 1018 adjuvant, we may be unable to realize any recurring commercial benefit from the development of a vaccine containing CpG 1018 adjuvant, and we may not have the ability to prevent others from developing or commercializing a vaccine containing CpG 1018 adjuvant.

We also rely on trade secret protection and confidentiality and other agreements to protect our interests in proprietary know-how related to CpG 1018 adjuvant. If we or our collaborators are unable to adequately obtain, protect or enforce our proprietary rights

relating to CpG 1018 adjuvant, we may be unable to realize recurring commercial benefit from the development of a vaccine containing CpG 1018 adjuvant, and we or our collaborators may not have the ability to prevent others from developing or commercializing a vaccine containing the adjuvant. Disputes or litigation may also arise with our collaborators (with us and/or with one or more third parties), including disputes over ownership rights to intellectual property, know-how or technologies developed with our collaborators.

Because patent applications in the U.S. and many foreign jurisdictions typically are not published until 18 months after filing and publications of discoveries in the scientific literature lag behind actual discoveries, we cannot be certain that we were the first to file for protection of the inventions set forth in these patent applications or in our issued patents. Further, there could be post-grant proceedings such as inter partes review ("IPR"), post grant review ("PGR"), reexamination, reissue or opposition which could result in claims in our patents being narrowed or invalidated.

Our commercial success depends significantly on our ability to operate without infringing patents and other proprietary rights of third parties. A number of pharmaceutical companies and biotechnology companies, as well as universities and research institutions, may have filed patent applications or may have been granted patents that cover inventions similar to the inventions owned by or licensed to us. We may not be able to determine with certainty whether patents or patent applications of other parties may materially affect our ability to make, use, offer to sell, or sell any products. If another party controls patents or patent applications covering our products, we may not be able to obtain the rights we need to those patents or patent applications in order to commercialize our products.

Litigation may be necessary to enforce patents issued or licensed to us or to determine the scope or validity of another party's proprietary rights. The existence of third-party patent applications and patents could significantly reduce the coverage of the patents owned by or licensed to us and limit our ability to obtain meaningful patent protection. Litigation or any other proceedings could result in substantial costs to and diversion of effort by us, and an adverse outcome in a court or patent office could subject us to significant liabilities, require disputed rights to be licensed from other parties, or require us to cease using some of our technology. We may not prevail in these actions or proceedings if they arise.

In addition, other parties may duplicate, design around or independently develop similar or alternative technologies to ours or our licensors.

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 may have exclusively licensed, now or in the future;
- 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;
- other parties may design around technologies we have licensed, patented or developed;
- pending patent applications or issued patents may be challenged by third parties in litigation or other proceedings, such as inter partes reviews, pre- and post-grant oppositions, reexaminations, derivation proceedings and post-grant review, in the U.S or abroad;
- we may be subject to claims that our employees or consultants have used or disclosed trade secrets or other proprietary information of their former employers or clients, thus putting our intellectual property at risk;
- our reliance on trade secret protection and confidentiality and other agreements may not be sufficient to protect our interests and proprietary know-how related to our products and processes; and
- it may be found that we or our collaborators have not complied with various procedural, document submission, fee payment and other requirements imposed by patent offices, and our patent protection could be reduced or eliminated.

We also rely on trade secret protection and confidentiality agreements to protect our interests in proprietary know-how that may not be directed to what is considered to be patentable subject matter, and for processes for which patents are difficult to enforce. We cannot be certain that we will be able to protect our trade secrets or other proprietary know-how 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 or continue to commercialize our products, enter into or maintain collaborations, generate revenues or maintain any advantage we may have with respect to existing or potential competitors.

We have in the past, and may in the future, rely on licenses to intellectual property from third parties. Impairment of these licenses or our inability to obtain or maintain them could severely harm our business.

Our current or future research and development efforts may depend in part upon our license arrangements for certain intellectual property owned by or co-owned with third parties. Our dependence on these licenses could subject 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 could 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 such agreements could allow 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 or at all. In addition, license agreements may be terminated or may expire by their terms, and we may not be able to maintain the exclusivity of these licenses or any rights to the underlying intellectual property. If we cannot obtain and maintain licenses that are advantageous or necessary to the development or the commercialization of our products or 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 or product candidates. If such alternatives are not available to us in a timely manner or on acceptable terms, we may be unable to develop or commercialize certain of our products or 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 intellectual property (including patents), which may not be possible or could require substantial funds and time.

We may be subject to claims that we or our employees or consultants have wrongfully used or disclosed alleged trade secrets of our employees' or consultants' former employers or their clients. These claims may be costly to defend and if we do not successfully do so, we may be required to pay monetary damages and may lose valuable intellectual property rights or personnel.

Many of our employees or consultants may have been previously employed in other biopharmaceutical companies, including our competitors or potential competitors. Some of these individuals executed proprietary rights, non-disclosure and non-competition agreements in connection with such previous employment or engagements. Although no claims against us are currently pending, we may be subject to claims that these employees or consultants or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers or clients. Litigation may be necessary to defend against these claims. If we fail in defending such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. A loss of key research personnel or their work product could hamper our ability to develop and ultimately commercialize, or prevent us from developing and commercializing, our product candidates, which could severely harm our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

We may rely, in some circumstances, on trade secrets and confidentiality agreements to protect our technology. Although trade secrets are difficult to protect, wherever possible, we use confidential disclosure agreements to protect the proprietary nature of our technology. Our standard practice is to require each of our collaborators, commercial partners, employees, consultants, contractors and advisors to enter into an agreement before beginning their employment, consulting or advisory relationship with us that in general provides that the individuals must keep confidential and not disclose to other parties any of our confidential information developed or learned by the individuals during the course of their relationship with us except in limited circumstances. These agreements with employees, consultants and contractors also generally provide that we own all inventions conceived by the individuals in the course of rendering their employment or services to us. However, there can be no assurance that these agreements will not be breached, that we will have adequate remedies for any breach, or that our trade secrets and/or proprietary information will not otherwise become known or be independently discovered by competitors. To the extent that our employees, consultants or contractors use intellectual property owned by others in their work for us, disputes may also arise as to the rights in related or resulting know-how and inventions, which could result in substantial costs which could severely harm our business.

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

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications are due to be paid to the United States Patent and Trademark Office and various governmental patent agencies outside of the United States in several stages over the lifetime of the patents and/or applications. We employ reputable law firms and other professionals to help us comply, and in many cases an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdictions, and in such an event, our competitors might be able to enter the market.

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

The biopharmaceutical patent environment outside the U.S. is also uncertain. We may be particularly affected by this uncertainty since several of our product candidates or our collaborators' vaccine candidates may initially address market opportunities outside the U.S., where we may only be able to obtain limited patent protection, if any at all. For example, while many countries such as the U.S. permit method of use patents or patent claims relating to the use of drug products, in some countries the law relating to patentability of such use claims is evolving, or may prohibit certain activities, and may be unfavorably interpreted to prevent us from successfully prosecuting some or all of our pending patent applications. There are some countries that currently do not allow such method of use patents or patent claims, or that significantly limit the types of uses, claims or subject matter that are patentable.

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

Geo-political actions in the U.S. and in foreign countries could increase the uncertainties and costs surrounding the prosecution or maintenance of our patent applications or those of any current or future licensors and the maintenance, enforcement or defense of our issued patents or those of any current or future licensors.

Various companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of many countries do not favor the enforcement of patents and other intellectual property protection, particularly those relating to pharmaceuticals, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights.

Various countries outside the U.S. have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. As a result, a patent owner may have limited remedies in certain circumstances, which could materially diminish the value of such patent. If we are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations and prospects may be adversely affected. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Further, the standards applied by the USPTO, foreign patent offices and other adjudicating bodies in granting and/or adjudicating patents are not always applied uniformly or predictably. As such, we do not know the degree of future protection that we will have on our products and product candidates.

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

Changes in either the patent laws or interpretation of the patent laws in the U.S. or in other jurisdictions could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. In the

U.S., numerous recent changes to the patent laws and proposed changes to the rules of the USPTO may have a significant impact on our ability to protect our technology and enforce our intellectual property rights.

For example, the America Invents Act, involved significant changes in patent legislation. Additionally, the U.S. Supreme Court has ruled on several patent cases in recent years, some of which cases either narrow the scope of patent protection available in certain circumstances or weaken the rights of patent owners in certain situations.

For example, in Europe, a new unitary patent system took effect June 1, 2023, which will significantly impact European patents, including those granted before the introduction of such a system. Under the unitary patent system, European applications have the option, upon grant of a patent, of becoming a Unitary Patent which will be subject to the jurisdiction of the Unitary Patent Court ("UPC"). As the UPC is a new court system, there is no precedent for the court, increasing the uncertainty of any litigation. Patents granted before the implementation of the UPC will have the option of opting out of the jurisdiction of the UPC and remaining as national patents in the UPC countries. Patents that remain under the jurisdiction of the UPC will be potentially vulnerable to a single UPC-based revocation challenge that, if successful, could invalidate the patent in all countries who are signatories to the UPC. We cannot predict with certainty the long-term effects of any potential changes.

Risks Related to 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:

- impact of COVID-19 or other respiratory or seasonal vaccination initiatives on our HEPLISAV-B vaccine, CpG 1018 adjuvant, or other product revenue;
- 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 authorities;
- 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, to the extent needed;
- 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 products or 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;
- the volume of trading in our common stock;
- investor perceptions or negative announcements by our customers, competitors or suppliers regarding their own performance; and
- industry conditions and general financial, economic and political instability.

The stock markets in general, and the markets for biotechnology and pharmaceutical stocks in particular, have historically experienced significant volatility that has often been unrelated or disproportionate to the operating performance of particular companies. Changes in the broader macroeconomic condition, including historically high inflation, changes in interest rates, government tapering policies, impact of pandemics or endemics and instances of geopolitical instability, such as that resulting from the conflicts in the Middle East and Ukraine, can and have caused changes in market prices, notwithstanding a lack of fundamental change in the underlying business models or prospects of companies. These broad market fluctuations have adversely affected and may in the future adversely affect the market price of our common stock, regardless of our actual operating performance.

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 have 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.

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.

Under our universal shelf registration statement, we may sell any combination of common stock, preferred stock, debt securities and warrants in one or more offerings, including pursuant to our sales agreement with Cowen & Company, LLC, under which we can offer and sell our common stock from time to time up to aggregate sales proceeds of $120.0 million. As of March 31, 2024, we had $120.0 million of our common stock remaining available for future issuance under our sales agreement with Cowen & Company, LLC. The sale or issuance of our securities, including those issuable upon exercise of the outstanding warrants or conversion of the preferred stock, 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.

Risks Related to Our Outstanding Convertible Notes

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our indebtedness, including the $225.5 million in Convertible Notes, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not continue to generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

We may not have the ability to generate or raise the funds necessary to settle conversions of the Convertible Notes in cash or to repurchase the notes for cash upon a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion or repurchase of the Convertible Notes.

Holders of the Convertible Notes will have the right, subject to certain conditions and limited exceptions, to require us to repurchase all or a portion of their Convertible Notes upon the occurrence of a fundamental change at a fundamental change repurchase price equal to 100% of the principal amount of the Convertible Notes to be repurchased, plus accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date. In addition, upon conversion of the Convertible Notes, unless we elect to deliver solely shares of our common stock to settle such conversion (other than paying cash in lieu of delivering any fractional share), we will be required to make cash payments in respect of the Convertible Notes being converted. Moreover, we will be required to repay the Convertible Notes in cash at their maturity unless earlier converted, redeemed or repurchased. However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Convertible Notes surrendered therefore or pay cash with respect to Convertible Notes being converted. In addition, our ability to repurchase the Convertible Notes or to pay cash upon conversions of the Convertible Notes may be limited by law, by regulatory authority or by agreements governing our

future indebtedness. Our failure to repurchase Convertible Notes at a time when the repurchase is required by the indenture governing the Convertible Notes or to pay any cash payable on future conversions of the Convertible Notes as required by the indenture governing the Convertible Notes would constitute a default under the indenture governing the Convertible Notes. A default under the indenture governing the Convertible Notes or the occurrence of a fundamental change itself could also lead to a default under agreements governing our future indebtedness. Moreover, the occurrence of a fundamental change under the indenture governing the Convertible Notes could constitute an event of default under any agreements governing our future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Convertible Notes or make cash payments upon conversions thereof.

The conditional conversion feature of the Convertible Notes may adversely affect our financial condition and operating results.

From January 1 through March 31, 2024, the conditions allowing holders to convert all or any portion of their Convertible Notes were not met. In the event the conditional conversion feature of the Convertible Notes is triggered, holders of Convertible Notes will be entitled to convert their Convertible Notes at any time during specified periods at their option. If one or more holders elect to convert their Convertible Notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders do not elect to convert their Convertible Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Convertible Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

Conversion of the Convertible Notes may dilute the ownership interest of our stockholders or may otherwise depress the price of our common stock.

From January 1 through March 31, 2024, the conditions allowing holders to convert all or any portion of their Convertible Notes have not been met. In the event the conditional conversion feature of the Convertible Notes is triggered, the conversion of some or all of the Convertible Notes to shares of common stock may dilute the ownership interests of our stockholders. Upon conversion of the Convertible Notes, we have the option to pay or deliver, as the case may be, cash, shares of our common stock, or a combination of cash and shares of our common stock. If we elect to settle our conversion obligation in shares of our common stock or a combination of cash and shares of our common stock, any sales in the public market of our common stock issuable upon such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the Convertible Notes may encourage short selling by market participants because the conversion of the Convertible Notes could be used to satisfy short positions, or anticipated conversion of the Convertible Notes into shares of our common stock could depress the price of our common stock.

Certain provisions in the indenture governing the Convertible Notes may delay or prevent an otherwise beneficial takeover attempt of us.

Certain provisions in the indenture governing the Convertible Notes may make it more difficult or expensive for a third party to acquire us. For example, the indenture governing the Convertible Notes will require us, subject to certain exceptions, to repurchase the Convertible Notes for cash upon the occurrence of a fundamental change and, in certain circumstances, to increase the conversion rate for a holder that converts its Convertible Notes in connection with a make-whole fundamental change. A takeover of us may trigger the requirement that we repurchase the Convertible Notes and/or increase the conversion rate, which could make it more costly for a potential acquirer to engage in such takeover. Such additional costs may have the effect of delaying or preventing a takeover of us that would otherwise be beneficial to investors.

The Capped Calls may affect the value of the Convertible Notes and our common stock.

In connection with the issuance of the Convertible Notes, we have entered into capped call transactions with the option counterparties totaling $27.2 million (the "Capped Calls"). The Capped Calls cover, subject to customary adjustments under the terms of the Capped Calls, the number of shares of common stock that initially underlie the Capped Calls. The Capped Calls are expected to offset the potential dilution to our common stock as a result of any conversion of the Convertible Notes, subject to a cap based on the cap price.

In connection with establishing their initial hedges of the Capped Calls, we have been advised that the option counterparties and/or their respective affiliates entered into various derivative transactions with respect to our common stock concurrently with or shortly after the pricing of the Convertible Notes and/or purchased shares of our common stock concurrently with or shortly after the pricing of the Convertible Notes. In addition, the option counterparties and/or their respective affiliates may modify their hedge positions by entering into or unwinding various derivatives with respect to our common stock and/or purchasing or selling our

common stock or other securities of ours in secondary market transactions following the pricing of the Convertible Notes and prior to the maturity of the Convertible Notes (and are likely to do so on each exercise date of the Capped Calls, which are expected to occur during the 30 trading day period beginning on the 31st scheduled trading day prior to the maturity date of the Convertible Notes, or following any termination of any portion of the Capped Calls in connection with any repurchase, redemption or early conversion of the Convertible Notes). This activity could also cause or avoid an increase or a decrease in the market price of our common stock or the Convertible Notes.

We are subject to counterparty risk with respect to the capped call transactions.

The option counterparties are financial institutions, and we will be subject to the risk that any or all of them might default under the Capped Calls. Our exposure to the credit risk of the option counterparties will not be secured by any collateral.

If an option counterparty becomes subject to insolvency proceedings, we will become an unsecured creditor in those proceedings with a claim equal to our exposure at that time under the Capped Calls with such option counterparty. Our exposure will depend on many factors but, generally, an increase in our exposure will be correlated to an increase in the market price and in the volatility of our common stock. In addition, upon a default by an option counterparty, we may suffer adverse tax consequences and more dilution than we currently anticipate with respect to our common stock. We can provide no assurances as to the financial stability or viability of the option counterparties.

General Risk Factors

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, or other future products we may attempt to commercialize, 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 and achieving profitability.

Our business operations are vulnerable to interruptions by natural disasters, health epidemics and other catastrophic events beyond our control, the occurrence of which could materially harm our manufacturing, distribution, sales, business operations and financial results.

Our business operations are subject to interruption by natural disasters and other catastrophic events beyond our control, including, but not limited to, earthquakes, hurricanes, fires, droughts, tornadoes, electrical blackouts, public health crises and pandemics, war, terrorism, bank failures and geo-political unrest and uncertainties. We have not undertaken a systematic analysis of the potential consequences to our business that might result from any such natural disaster or other catastrophic event and have limited recovery plans in place. If any of these events occur, our manufacturing and supply chain, distribution, sales and marketing efforts and other business operations could be subject to business shutdowns or disruptions and financial results could be adversely affected. We cannot presently predict the scope and severity of any potential business shutdowns or disruptions resulting from these events, but if we or any of the third parties with whom we engage, including the suppliers, contract manufacturers, distributors and other third parties with whom we conduct business, were to experience shutdowns or other business disruptions, our ability to conduct our business in the manner and on the timelines presently planned could be materially and adversely affected in a number of ways, some of which are not predicable.

Our business could be adversely affected by health epidemics in regions where we have manufacturing facilities, sales activities or other business operations. For example, outbreaks of epidemic or pandemic diseases, such as COVID-19, or the fear of such events, have and could again in the future cause restrictions on supply chains, restrict access to workplaces and affect employee health and availability. Furthermore, during the peak of the COVID-19 pandemic there was a significantly reduced utilization of all adult vaccines (other than COVID-19 vaccines), including a reduced utilization of HEPLISAV-B.

Although we maintain inventories of HEPLISAV-B and its components, our ability and those of our contractors and distributors to produce and distribute HEPLISAV-B could be adversely affected. A pandemic or similar health challenge could severely impact the U.S. healthcare system, which may have an adverse effect on usage and sales of HEPLISAV-B. In addition, any such event could result in widespread global health crisis that could adversely affect global economies and financial markets resulting in an economic downturn that could affect the demand for HEPLISAV-B and future revenue and operating results and our ability to raise additional capital when needed on acceptable terms, if at all.

Additionally, our corporate headquarters in Emeryville, California, is located in a seismically active region that also is subject to possible electrical shutdowns and wildfires. Because we do not carry earthquake insurance for earthquake-related losses and significant recovery time could be required to resume operations, our financial condition and operating results could be materially adversely affected in the event of a major earthquake or catastrophic event. We carry only limited business interruption insurance that would compensate us for actual losses from interruption of our business that may occur, and any losses or damages incurred by us in excess of insured amounts could adversely affect our business and operations.

If our information technology systems or those of third parties upon which we rely, or our data are or were compromised, we could experience adverse consequences resulting from such compromise, including but not limited to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; and other adverse consequences.

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. In addition, our dependence on information technology systems has intensified because many of our critical business activities are now being conducted remotely in our remote-first work environment. 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, along with those of our customers, suppliers, or third-party service providers which operate critical business systems to process sensitive information in a variety of contexts are potentially vulnerable to a variety of evolving threats and data security breaches—whether by employees or others—that may expose sensitive data to unauthorized persons. Such threats could include, but not be limited to social-engineering attacks (including through phishing attacks), online and offline fraud, malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial-of-service attacks, access attacks (such as credential stuffing or credential harvesting), personnel misconduct or error, ransomware attacks, supply-chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, earthquakes, fires, floods, and other similar threats. Such threats are prevalent and continue to rise, are increasingly difficult to detect, and come from a variety of sources, including traditional computer “hackers,” threat actors, “hacktivists,” organized criminal threat actors, personnel (such as through theft or misuse), sophisticated nation states, and nation-state-supported actors.

Ransomware attacks, including by organized criminal threat actors, nation-states, and nation-state-supported actors, are becoming increasingly prevalent and severe and can lead to significant interruptions in our operations, loss of data and income, reputational harm, and diversion of funds. Extortion payments may alleviate the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments due to, for example, applicable laws or regulations prohibiting such payments. Similarly, supply-chain attacks have increased in frequency and severity, and we cannot guarantee that third parties and infrastructure in our supply chain or our third-party partners’ supply chains have not been compromised or that they do not contain exploitable flaws or bugs that could result in a breach of or disruption to our information technology systems (including our products or the third-party information technology systems that support us and our goods). If our third-party service providers experience a security incident or other interruption, we could experience adverse consequences. While we may be entitled to damages if our third-party service providers fail to satisfy their privacy or security-related obligations to us, any award may be insufficient to cover our damages, or we may be unable to recover such award.

The potential liability and associated consequences we could suffer as a result of any such cyber events could be catastrophic and result in irreparable harm including (a) the loss of trade secrets or other intellectual property, or (b) the public exposure of personally identifiable information (including sensitive personal information) of our employees, collaborators, clinical trial patients, and others, (c) extortion and other monetary damages due to malware or business email compromise, (d) significant interruptions in our operations, or (e) other significant damages. 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 data 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 EU GDPR and UK GDPR, resulting in significant penalties; increased costs; loss of revenue; expenses of computer or forensic

investigations; material fines and penalties; compensatory, special, punitive or statutory damages; litigation; consent orders regarding our privacy and security practices; requirements that we provide notices, credit monitoring services and/or credit restoration services or other relevant services to impacted individuals; adverse actions against our licenses to do business; or injunctive relief.

Compliance with these and any other applicable privacy and data security laws and regulations is a rigorous and time-intensive process, and we may be required to put in place additional mechanisms ensuring compliance with the new data protection rules. If we fail to comply with any such laws or regulations, we may face significant fines and penalties that could adversely affect our business, financial condition and results of operations. Furthermore, the laws are not consistent, and compliance in the event of a widespread data breach is costly.

U.S. and equivalent foreign authorities and international authorities warned businesses of increased cybersecurity threats from actors seeking to exploit the COVID-19 pandemic. In 2020, we experienced a cybersecurity incident known as a phishing e-mail scam, and although we do not consider its impact on us to be material, if we are unable to prevent this or other 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. Moreover, failure to maintain effective internal accounting controls related to data security breaches and cybersecurity in general could impact our ability to produce timely and accurate financial statements and could subject us to regulatory scrutiny. 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 that are intended to protect our data security and information technology systems, there can be no assurance that these measures will be effective. We take steps designed to detect, mitigate, and remediate vulnerabilities in our information systems (such as our hardware and/or software, including that of third parties upon which we rely). We may not, however, detect and remediate all such vulnerabilities including on a timely basis. Further, we may experience delays in deploying remedial measures and patches designed to address identified vulnerabilities.

Such disruptions and breaches of security could have a material adverse effect on our business, financial condition and results of operations. Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations. We cannot be sure that our insurance coverage will be adequate or sufficient to protect us from or to mitigate liabilities arising out of our privacy and security practices, that such coverage will continue to be available on commercially reasonable terms or at all, or that such coverage will pay future claims.

Adverse developments affecting the financial services industry may have adverse consequences on our business, financial condition and stock price.

We regularly maintain cash balances at third-party financial institutions in excess of the FDIC insurance limit. Although we assess our banking relationships as we believe necessary or appropriate, our access to funding sources in amounts adequate to finance or capitalize our current and projected future business operations could be significantly impaired by factors that affect us, the financial institutions with which we have arrangements directly, or the financial services industry or economy in general. These factors could involve financial institutions or financial services industry companies with which we have financial or business relationships, but could also include factors involving financial markets or the financial services industry generally.

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

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

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	Certificate of Amendment of the Sixth Amended and Restated Certificate of Incorporation	3.1	8-K	May 29, 2020	001-34207	
3.9	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, 3.8, and 3.9					
4.2	Form of Specimen Common Stock Certificate	4.2	S-1/A	January 16, 2004	333-109965	
4.3	Indenture between Company and U.S. Bank National Association, as trustee, dated May 13, 2021	4.1	8-K	May 13, 2021	001-34207	
4.4	Form of Global Note, representing Dynavax Technologies Corporation's 2.50% Convertible Senior Notes due 2026	4.2	8-K	May 13, 2021	001-34207	
10.1+	Sublease, dated March 7, 2024, by and between Company and Metagenomi, Inc.					X
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1*	Certification of Principal Executive Officer and Principal Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X

EX—101.INS	Inline 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	Inline XBRL Taxonomy Extension Schema Document
EX—104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)

+ Annexes, schedules and/or exhibits have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The Registrant agrees to furnish supplementally a copy of any omitted attachment to the SEC on a confidential basis upon request.

* The certification attached as Exhibit 32.1 that accompanies this Quarterly Report on Form 10-Q, is not deemed filed with the Securities and Exchange Commission and is 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: May 8, 2024

By: /s/ RYAN SPENCER

Ryan Spencer
Chief Executive Officer, Interim Chief Financial Officer and Director
(Principal Executive Officer and Principal Financial Officer)

Date: May 8, 2024

By: /s/ JUSTIN BURGESS

Justin Burgess
Vice President Finance, Chief Accounting Officer
(Principal Accounting Officer)

Exhibit 10.1

SUBLEASE

BASIC SUBLEASE INFORMATION

Effective Date:	March 7, 2024
Sublandlord:	Dynavax Technologies Corporation, a Delaware corporation
Sublandlord's Address For Notice:	Dynavax Technologies Corp. Attn: Chief Financial Officer 2100 Powell Street, Suite 720 Emeryville, CA 94608
With a Copy To:	Cooley LLP 11951 Freedom Drive, Suite 1400 Reston, Virginia 20190 Attn: John G. Lavoie, Esq. Email: jlavoie@cooley.com
Sublandlord's Address For Payment of Rent:	ACH / EFT Payments: To be provided
Subtenant:	Metagenomi, Inc., a Delaware corporation
Subtenant's Address For Notice and Tenant's Representative:	5959 Horton Street, 7th Floor Emeryville, CA 94608 Attn: Chief Financial Officer Email: pamela.wapnick@metagenomi.co
With a Copy To:	With a copy to: legal@metagenomi.co, and Dalsin Law 1630 N. Main Steet, No. 221 Walnut Creek, CA 94596 Attn: Ann M. Dalsin, Esq. Email: ann.dalsin@dalsinlaw.com
Master Landlord:	EmeryStation West, LLC, a California limited liability company
Building:	The building within the Project with a common address of 5959 Horton Street, Emeryville, California 94608
Building Address:	5959 Horton Street Emeryville, California 94608

Subleased Premises: Approximately seventy-five thousand six hundred sixty-two (75,662) rentable square feet located within the Building, comprising the entirety of the 6th and 7th floors of the Building, as generally shown in **Exhibit A**

Subleased Premises Address: 5959 Horton Street
Emeryville, California 94608
6th and 7th Floor

Commencement Date: Immediately upon termination of the (i) Zymergen Sublease and (ii) Sub-Sublease (as such terms are herein defined)

Expiration Date: March 31, 2031

Sublease Term: The period beginning on the Commencement Date and ending on the Expiration Date.

Base Rent:

From:	To:	Base Rent (per month)
Commencement Date	June 30, 2024	$246,677.04
July 1, 2024	December 31, 2024	$493,354.07
January 1, 2025	December 31, 2025	$510,621.46
January 1, 2026	December 31, 2026	$528,493.21
January 1, 2027	December 31, 2027	$546,990.47
January 1, 2028	December 31, 2028	$566,135.14
January 1, 2029	December 31, 2029	$585,949.87
January 1, 2030	December 31, 2030	$606,458.12
January 1, 2031	March 31, 2031	$627,684.15

Base Rent Abatement: One half (50%) of the Base Rent through June 30, 2024 shall be abated as reflected in the above table.

Subtenant's Share: Building: 28.94%

Letter of Credit: One Million Nine Hundred Seventy-Three Thousand Four Hundred Sixteen and 28/100 Dollars ($1,973,416.28).

Sublandlord's Broker: Not applicable.

Subtenant's Broker: Not applicable.

Permitted Use: Office, research and development and laboratory use, in each case, to the extent permitted and subject to Section 5 below.

EXHIBITS

A. Outline of Subleased Premises
B. Master Lease
C. Sublandlord FF&E
D. Bill of Sale
E. Environmental Questionnaire
F. Intentionally Omitted
G. Form of Letter of Credit

RECITALS

Whereas, Master Landlord, as landlord, and Sublandlord, as tenant, are parties to that certain Office/Laboratory Lease dated as of September 17, 2018 (the "***Master Lease***"), pursuant to which Master Landlord leases to Sublandlord the Subleased Premises. A copy of the Master Lease is attached to this Sublease as **Exhibit B**.

Whereas, Sublandlord, as sublandlord, and Zymergen Inc., a Delaware corporation ("***Zymergen***"), as subtenant, entered into that certain Sublease dated as of July 12, 2019 (the "***Zymergen Sublease***"), pursuant to which Sublandlord subleased to Zymergen the Subleased Premises.

Whereas, Zymergen, as sub-sublandlord, and Subtenant, as sub-subtenant, entered into that certain Sublease dated as of November 11, 2022 (the "***Sub-Sublease***"), pursuant to which Zymergen sub-subleased to Subtenant the Subleased Premises.

Whereas, pursuant to that certain Termination and Release Agreement dated on or about the date hereof, by and between Master Landlord, Zymergen, Sublandlord and Subtenant, (i) the Zymergen Sublease shall terminate as of the Effective Date hereof; (ii) the Sub-Sublease shall terminate as of the Effective Date hereof; and (iii) Sublandlord and Subtenant shall enter into this Sublease as of the Effective Date hereof, pursuant to which Sublandlord shall sublet to Subtenant, and Subtenant shall sublet from Sublandlord, the Subleased Premises on all of the terms and conditions of this Sublease.

Capitalized terms used herein shall have the meanings given such terms in the Master Lease, unless otherwise defined herein or within the Basic Sublease Information.

AGREEMENT

Now, Therefore, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. Sublease. Sublandlord does hereby sublet to Subtenant and Subtenant does hereby sublet from Sublandlord the Subleased Premises, subject to the terms, provisions, and conditions of this Sublease. Subtenant hereby acknowledges the rentable square footage of the Subleased Premises set forth above in the Basic Sublease Information, and Subtenant accepts and agrees that, for all purposes in this Sublease, such amount is not approximate and agrees to be bound by such figure. Notwithstanding the foregoing, in the event the Master Lease provides the right to Master Landlord to remeasure and/or otherwise modify the rentable square footage of the Subleased Premises, the parties agree that the rentable square footage of the Subleased Premises may be modified to reflect such adjustment.

2. Sublease Contingency; Sublease Term.

(a) Sublease Contingency. Sublandlord and Subtenant expressly acknowledge and agree that this Sublease is subject to the following contingency (the "***Sublease Contingency***"): Master Landlord's prior written consent to this Sublease, in form provided by Master Landlord and reasonably acceptable to Sublandlord and Subtenant ("***Master Landlord's Consent***"). Subtenant agrees to cooperate in all reasonable respects in connection with obtaining the Master Landlord's Consent. If Sublandlord, despite the parties' good faith efforts, fails to obtain the Master Landlord's Consent within forty-five (45) days after the Effective Date, then either Sublandlord or Subtenant may terminate this Sublease by giving written notice thereof to the other at any time prior to receipt of the Master Landlord's Consent. If either party terminates this Sublease pursuant to the immediately preceding sentence, then notwithstanding anything to the contrary set forth herein, this Sublease shall be null and void, of no force or effect, and Sublandlord shall within thirty (30) days after notice of termination is given, return to Subtenant the Prepayment (defined in Section 4 below), and/or Letter of Credit (defined in Section 19 below) to the extent actually delivered by Subtenant to Sublandlord. The return of such sums paid by Subtenant shall be Subtenant's sole and exclusive remedy in the event of a termination pursuant to this Section 2(a). Furthermore, neither party shall have any liability to the other for any termination or cancellation of this Sublease if Master Landlord's Consent is not obtained.

(b) Sublease Term. The Sublease Term shall commence on the Commencement Date and shall continue in full force and effect for the period of time specified as the Sublease Term in the Basic Sublease Information; provided, however, that in no event shall the Sublease Term extend beyond the term of the Master Lease. Subtenant shall have no right whatsoever pursuant to this Sublease to extend the Sublease Term for any portion of the Subleased Premises, and Subtenant acknowledges and agrees that this Sublease does not incorporate by reference or include any right of Sublandlord in the Master Lease to extend the term of the Master Lease.

3. Delivery and Condition. Subtenant accepts the Subleased Premises in its "AS IS, WHERE IS, WITH ALL FAULTS" condition with the furniture, fixtures and equipment existing in the Premises as of the Effective Date remaining. Upon the expiration or earlier termination of the Sublease (including without limitation, in the event the Master Lease terminates prior to the expiration date of this Sublease, and Master Landlord recognizes Subtenant as a direct tenant pursuant to the terms of the Master Landlord's Consent), Subtenant shall purchase the furniture, fixtures and equipment generally described on **Exhibit C** (the "***Sublandlord FF&E***"), specifically including nine biosafety cabinets and two lab freezers located on the 6th Floor Premises from Sublandlord in its "AS IS, WHERE IS, WITH ALL FAULTS" condition for a purchase price of $1.00, pursuant to a bill of sale to be signed by both parties in the form attached hereto as **Exhibit D**. Subtenant acknowledges that Sublandlord shall have no obligation to perform any improvements, alterations, or other work to the Subleased Premises, or provide Subtenant with any improvement allowance with respect to the Subleased Premises. As of the Possession Date, Subtenant accepted the Subleased Premises in the condition provided for in this Section and waived all claims of defect in or relating to the Subleased Premises.

4. Rent.

(a) Terms of Payment. Subtenant shall pay to Sublandlord, at Sublandlord's Address for Payment of Rent designated in the Basic Sublease Information, or as otherwise directed by Sublandlord, Base Rent, and Additional Rent, without notice, demand, offset or deduction, in advance, on the first day of each calendar month, except as otherwise expressly set forth in this Sublease. All payments required to be paid by Subtenant to Sublandlord shall be made in federal funds by electronic fund transfer (EFT) or Automated Clearing House (ACH) (or to such other party or at such location as Sublandlord may otherwise from time to time specify in writing) before 11:00 a m. Pacific Time. If the Sublease Term commences (or ends) on a date other than the first (or last) day of a month, Base Rent shall be prorated on the basis of a thirty (30) day month. Subtenant shall have no right at any time to abate, reduce, or set-off any rent due hereunder except as may be expressly provided in this Sublease.

(b) Additional Rent. All sums due from Subtenant to Sublandlord or to any third party under the terms of this Sublease (other than Base Rent and the Letter of Credit) shall be additional rent ("***Additional Rent***"). Additional Rent shall include, without limitation, (i) Subtenant's Share of all amounts other than base rent payable by Sublandlord to Master Landlord under the Master Lease with respect to the Subleased Premises, including without limitation amounts payable as Rent Adjustment, as defined in the Master Lease; (ii) taxes on personal property, equipment and fixtures located in or about the Subleased Premises; (iii) amounts recoverable due to a failure of performance by Subtenant under this Sublease; and (iv) any other costs or expenses due from Sublessee to Sublessor under this Sublease. "***Subtenant's Share***" shall be the percentage set forth in the Basic Sublease Information as Subtenant's Share of the Project and Subtenant's Share of the Building, as applicable. However, Subtenant's Share may be reasonably adjusted by Sublandlord in the future for changes in the physical size of the Project made by Sublandlord and/or Master Landlord. Sublandlord may equitably increase Subtenant's Share for any item of expense or cost reimbursable by Subtenant that relates to an item of maintenance, repair, replacement, or service that benefits only the Subleased Premises. All Additional Rent that is payable to Sublandlord shall be paid at the time, place, and manner as Base Rent pursuant to Section 4(a) above, unless this Sublease expressly provides otherwise. Sublandlord will have the same remedies for a default in the payment of any Additional Rent as for a default in the payment of Base Rent. Together, Base Rent, Additional Rent and any other sums due hereunder from Subtenant are sometimes referred to in this Sublease as "***Rent***".

(c) Omitted.

(d) Late Charge; Interest. Subject to other provisions of this Sublease, if Subtenant fails to pay any Rent within two (2) business days after notice of late payment (with notice to be given by noon on such first business day), Subtenant shall pay to Sublandlord on demand a late charge equal to ten percent (10%) of such delinquent sum.

The provision for such late charge shall be in addition to all of Sublandlord's other rights and remedies hereunder or at law and shall not be construed as a penalty. No endorsement or statement on a check or letter accompanying a check or payment shall be considered an accord and satisfaction of past due Rent. Subtenant's covenant to pay Rent is independent of every other covenant in this Sublease.

5. Use; Compliance with Laws; Hazardous Materials.

(a) The Subleased Premises shall be used for the Permitted Use to the extent permitted by the Master Lease, in accordance with this Sublease, and for no other purpose. Subtenant shall use the Subleased Premises in compliance with all statutes, codes, ordinances, orders, rules and regulations of any municipal or governmental entity, including, without limitation, all applicable federal, state and local laws or regulations governing protection of, damage to the environment, or the treatment, storage or disposal of hazardous materials, and any covenants, conditions and restrictions encumbering the Subleased Premises, the Building and/or the Project (collectively referred to as "***Laws***"). Subtenant shall be responsible for obtaining any permit, business license, or other permits or licenses required by any governmental agency permitting Subtenant's use or occupancy of the Subleased Premises. Sublandlord makes no warranty or representation as to whether or not the Subleased Premises comply with Law and, notwithstanding anything to the contrary contained herein, Sublandlord shall have no obligation to bring the Subleased Premises into compliance with Law, nor any such obligation with respect to the Building or the Project. In the event that Subtenant's use of the Subleased Premises requires modifications or additions to the Subleased Premises, the Building, or the Project in order to be in compliance with Law, Subtenant agrees to make any such necessary modifications and/or additions at its sole cost and expense and in accordance with the terms of Section 8 herein.

(b) Subtenant shall not use, store, transport or dispose of any Hazardous Materials (as defined in the Master Lease) in, under or about the Subleased Premises, Building or the Project, except that Subtenant may keep, store and use in the Subleased Premises those Hazardous Materials, and their respective quantities, specifically listed on the "***Environmental Questionnaire***" attached to this Sublease as **Exhibit E**, in each case, to the extent approved in writing by Sublandlord and (if applicable) Master Landlord, and as otherwise permitted pursuant to the terms and conditions of Section 7.1(g) of the Master Lease incorporated herein. The Environmental Questionnaire may be reasonably updated by written notice by Subtenant to Sublandlord from time to time. Subtenant shall update such Environmental Questionnaire upon reasonable notice from Sublandlord. Any such updates shall be subject to the review and approval of Sublandlord and (if applicable) Master Landlord. Subtenant hereby represents and warrants to Sublandlord that (i) neither Subtenant nor any of its legal predecessors has been required by any prior landlord, sublandlord, lender or governmental authority at any time to take remedial action in connection with Hazardous Materials contaminating a property which contamination was permitted by Subtenant or such predecessor, or resulted from Subtenant's or such predecessor's action or use of the property in question; and (ii) Subtenant is not subject to any enforcement order issued by any governmental authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any governmental authority). If Sublandlord determines that this representation and warranty was not true as of the date of this Sublease, Sublandlord shall have the right to terminate this Sublease in Sublandlords' sole and absolute discretion.

6. Utilities and Services.

(a) Subtenant shall be solely responsible for and shall pay when due all (i) water, sewer, gas, electricity, other utilities and utility-type services used on or provided to the Subleased Premises, (ii) environmental health and safety services and hazardous waste management furnished to the Subleased Premises, and (iii) information technology services and support, administrative support, janitorial services, business services, office supplies, food and beverage, and other similar items and services with respect to the Subleased Premises. Subtenant shall contract directly for such services. Sublandlord shall not be liable to Subtenant for interruption in or curtailment of any such utility or service, nor shall any such interruption or curtailment constitute constructive eviction or grounds for rental abatement. In the event the Subleased Premises is not separately metered for a utility service, Subtenant shall have the option, subject to Sublandlord's and Master Landlord's prior written consent and the terms of this Sublease, to cause the Subleased Premises to be separately metered at Subtenant's sole cost and expense. If Subtenant does not elect to cause the Subleased Premises to be separately metered, Subtenant shall pay, upon demand, a reasonable proration of utilities, as determined by Sublandlord. Subtenant hereby waives the provisions of any applicable existing or future

Laws permitting the termination of this Sublease due to an interruption, failure or inability to provide any services or utilities (including, without limitation, the provisions of California Civil Code Section 1932(1)).

(b) To allow for compliance with building performance benchmarking and disclosure laws and regulations (including, but not limited to, compliance with California Public Resources Code §25402.10), Subtenant, promptly upon request, shall deliver to Sublandlord (or, at Sublandlord's option, execute and deliver to Sublandlord an instrument enabling Sublandlord to obtain from such provider) any data about Subtenant's utility consumption. Further, Subtenant authorizes Sublandlord and Master Landlord to disclose such information and data regarding the Subleased Premises as may be requested or required from time to time to comply with Laws and/or energy regulations.

7. Maintenance and Repairs. Subtenant acknowledges and agrees that Master Landlord shall be responsible for the maintenance and repair obligations of the "Landlord" under the Master Lease. Subtenant shall look solely to Master Landlord for performance thereof. Subtenant hereby recognizes and agrees that all acknowledgements, reservations of rights, limitations on and waivers of liability, and rights to notice in favor of "Landlord" are incorporated into this Sublease in favor of Master Landlord and Sublandlord, as if the same were restated in this Sublease by Subtenant. In no event shall Sublandlord be obligated to undertake any maintenance, repair or replacement obligations that are otherwise the responsibility of Master Landlord or Subtenant, whether hereunder or under the Master Lease. Notwithstanding anything to the contrary contained herein, if any maintenance, repairs, or replacements are required to be made to the Subleased Premises, the Master Premises, the Building, or the Project due to the acts, omissions or negligence of Subtenant or any Subtenant Party (defined in Section 11 below), then such maintenance, repairs, or replacements shall be at Subtenant's sole cost and expense; provided, further, Subtenant shall be responsible for keeping and maintaining the Subleased Premises in good condition at its sole cost and expense except as explicitly set forth in the Master Lease or herein.

8. Alterations.

(a) Any alterations, additions or improvements to the Subleased Premises by or for Subtenant (collectively referred to as "***Alterations***") shall require the prior written consent of Sublandlord and Master Landlord. Alterations shall be subject to and made in accordance with Article 9 of the Master Lease, which is incorporated herein by this reference (provided, however, that all references therein to "Tenant" and "Subleased Premises" shall mean "Subtenant" and the "Subleased Premises", respectively, and all references therein to "Landlord" shall mean "Sublandlord" and "Master Landlord"). Upon the expiration or earlier termination of this Sublease, Subtenant shall remove any or all Alterations made or installed by, or on behalf of, Subtenant and restore the Subleased Premises to the condition required pursuant to Section 17 below; provided, however, (a) rights in favor of Master Landlord to retain, preserve, and/or leave in place all or any portion of such Alterations are incorporated into this Sublease in favor of Master Landlord and Sublandlord, as if the same were restated in this Sublease by Subtenant; and (b) in the event of the exercise of such right, such items shall be and become the property of (as applicable) Sublandlord or Master Landlord upon the expiration or earlier termination of this Sublease. Subtenant shall be solely responsible for the planning, permitting, construction and completion of any Alterations at Subtenant's sole cost and expense. Subtenant shall make all payments for Alterations in a timely manner so as not to permit any mechanic's or other liens to be placed upon the Subleased Premises in connection with any Alterations. Subtenant shall fully discharge any such lien within fifteen (15) days after the date of filing, and if Subtenant fails to do so, Sublandlord may take such action as may be necessary to remove such lien and Subtenant shall promptly pay Sublandlord such amounts expended by Sublandlord in connection therewith. Subtenant shall not damage or deface the furnishings, walls, floors, ceilings or other portions of the Subleased Premises. Any damage to the Subleased Premises, the Building and/or the Project caused by Subtenant or a Subtenant Party shall be promptly repaired by Subtenant, to Sublandlord's and (if applicable) to Master Landlord's satisfaction, all at Subtenant's sole cost and expense. Any provision which permits Master Landlord to recover costs incurred in connection with reviewing and coordination of Alterations shall be construed as requiring Subtenant to pay such costs of Master Landlord and Sublandlord,

(b) It is hereby acknowledged and agreed that it is Subtenant's intention to convert all or a portion of the 7th floor of the Premises to laboratory space (the "***Laboratory Conversion Work***"). Subtenant shall have the right, but not the obligation, to undertake the Laboratory Conversion Work at its own cost and expense. Provided Subtenant complies with Article 9 of the Master Lease, Sublandlord consents to Subtenant performing the Laboratory Conversion Work. Notwithstanding anything in this Sublease or Master Lease to the contrary, the Security Deposit and Rent Adjustment shall not be increased due to any Laboratory Conversion Work, nor shall Subtenant nor Sublandlord have

any obligation to remove the Laboratory Conversion Work or restore the Sublease Premises to its condition prior to the Laboratory Conversion Work at the end of the Sublease Term. This paragraph and Sublandlord's consent hereto, shall be subject to Sublandlord's and Subtenant's receipt of consent to the same from Master Landlord.

(c) Notwithstanding anything in this Sublease to the contrary, Sublandlord acknowledges and agrees that certain of the Sublandlord FF&E may be required to be modified, moved or removed by Subtenant in connection with the performance of any Subtenant Alterations and/or the Laboratory Conversion Work. In furtherance of the foregoing, Subtenant shall have the right to remove, move and/or modify the Sublandlord FF&E in connection with an approved Alteration and/or the Laboratory Conversion Work ("***Removable FF&E***") without the prior consent of Sublandlord but upon prior written notice to Sublandlord for Sublandlord's accounting and recordkeeping purposes ("***Removal Notice***"). Further, in the event the cost of removal of any item of Removable FF&E (per instance) exceeds Ten Thousand and No/100 Dollars ($10,000.00), Subtenant shall have the right to provide Sublandlord with written notice thereof (which notice shall include reasonable backup documentation evidencing such cost), and Sublandlord shall remove the same at Sublandlord's sole cost and expense.

9. Entry by Sublandlord or Master Landlord. Sublandlord or Master Landlord may enter the Subleased Premises at any time during the Sublease Term and/or undertake the following all without abatement of Rent or liability to Sublandlord and/or Master Landlord: inspect the Subleased Premises; to make and operate repairs, alterations, improvements, or additions to the Subleased Premises; show the Subleased Premises to prospective purchasers and investors and existing and prospective lenders; and (if applicable), during the last nine (9) months of the Subleased Term, place signs for the rental of, and show the Subleased Premises to prospective tenants and/or subtenants. Subtenant acknowledges that any prior notice of entry into the Subleased Premises may be given orally; however, no notice shall be required in case of an emergency.

10. Assignment and Subletting. Subtenant shall not assign, sublease, or transfer any interest in this Sublease or allow any third party to use any portion of the Subleased Premises (collectively or individually, a "***Transfer***"), without the prior written consent of Sublandlord and Master Landlord. Each Transfer (including a proposed Transfer) shall be subject to Article 10 of the Master Lease which is incorporated herein by this reference (provided, however, that all references therein to "Tenant" and "Subleased Premises" shall mean "Subtenant" and the "Subleased Premises", respectively, and all references therein to "Landlord" shall mean "Sublandlord" and "Master Landlord"). Any Transfer without the prior written consent of Sublandlord and Master Landlord shall be an incurable default by Subtenant and, in addition to any other rights and remedies, shall entitle Sublandlord to terminate this Sublease immediately. Subtenant shall not be released from any of its obligations under this Sublease or those provisions of Master Lease incorporated herein, and shall continue to be liable as a principal, not as a guarantor or surety, and to the same extent as though no Transfer had been made. Subject to all of the foregoing, no permitted Transfer shall be effective until there has been delivered to Sublandlord a counterpart of the Transfer instrument in which the transferee agrees to be and remain jointly and severally liable with Subtenant for the payment of Rent pertaining to the Subleased Premises and for the performance of all of the terms and provisions of this Sublease and those provisions of Master Lease incorporated herein. Notwithstanding anything to the contrary herein or otherwise, Subtenant shall not collaterally assign, mortgage, pledge, hypothecate or otherwise encumber the Subleased Premises, this Sublease, the Master Lease, or any of Subtenant's rights hereunder without the prior written consent of Sublandlord and Master Landlord, which consent Sublandlord and/or Master Landlord may withhold in its/their sole discretion. Subtenant hereby waives (for itself and all persons claiming under Subtenant) the provisions of California Civil Code Section 1995.310.

11. Indemnity and Waiver of Claims. Subtenant shall indemnify, defend (by counsel acceptable to Sublandlord) and hold Sublandlord and all of Sublandlord's affiliates, and each of their respective, owners, investors, partners, principals, members, trustees, officers, directors, shareholders, agents, contractors, employees and lenders ("***Sublandlord Parties***") harmless from and against all liabilities, damages, claims, and expenses, including, without limitation, reasonable attorneys' fees (if and to the extent permitted by Law), which may be imposed upon, incurred by or asserted against Sublandlord or any of the Sublandlord Parties, arising directly or indirectly out of (a) the use or occupancy of the Subleased Premises, the conduct of Subtenant's business or any activity, work or things done, permitted or suffered by Subtenant or any of Subtenant's affiliates, or their respective employees, agents, customers, visitors, invitees, licensees, contractors, assignees (individually, a "***Subtenant Party***", and collectively, the "***Subtenant Parties***"), or (b) a breach or default in the performance of any obligation on Subtenant's part to be performed hereunder, except to the extent caused by Sublandlord's gross negligence or willful misconduct. Subtenant hereby waives all claims against Sublandlord and the Sublandlord Parties for (i) any injury or damage to person or

property (or resulting from the loss of use thereof) in or about the Subleased Premises or the Building by or from any cause whatsoever (including, without limiting the foregoing, rain or water leakage of any character from the roof, windows, walls, basement, pipes, plumbing works or appliances, the Project, the Building and/or the Subleased Premises not being in good condition or repair, gas, fire, oil, or electricity), except to the extent caused by Sublandlord's gross negligence or willful misconduct, and (ii) any failure to prevent or control any criminal or otherwise wrongful conduct by any third party or to apprehend any third party who has engaged in such conduct. Notwithstanding any provision in this Sublease to the contrary, neither Sublandlord nor any Sublandlord Parties, nor Master Landlord nor any of their owners, partners, principals, members, trustees, officers, directors, shareholders, agents, employees and lenders, shall be liable for (and Subtenant hereby waives any claims for) any injury or damage to, or interference with, Subtenant's business, including consequential damage, loss of profits, loss of rents or other revenues, loss of business opportunity, loss of goodwill or loss of use, or for any form of punitive damage. Subtenant and Subtenant parties shall only be liable to Sublandlord, Sublandlord Parties and Master Landlord for any consequential damage, compensation or claims for inconvenience or loss of business, rents or profits as a result of any injury or damage (a) (i) caused directly by an act or omission of Subtenant or any of Subtenant's invitees, agents or employees, and (ii) Master Landlord has brought an action against Sublandlord for same; or (b) to the extent resulting from a holdover (which is governed by Section 18 of this Sublease).

12. Insurance. The provisions of Article 16 of the Master Lease pertaining to insurance shall be incorporated into this Sublease, subject to the following terms. For purposes of this Sublease, (i) the term "***Tenant***" in Article 16 of the Master Lease shall be deemed to mean Subtenant; (ii) the term "***Landlord***" in Section 16.3 of the Master Lease shall be deemed to mean Master Landlord; (iii) the term "***Landlord***" in Sections 16.1, 16.2, 16.4 and 16.5 of the Master Lease shall be deemed to mean Master Landlord and Sublandlord (it being understood that Sublandlord and Sublandlord Parties shall be named, as applicable, as additional insureds and loss payees, that Sublandlord shall be entitled to all applicable notices related to such insurance and to evidence of all such insurance, and that the release and waiver of subrogation in Section 16.4 of the Master Lease shall also apply as between Sublandlord and Subtenant; and (iv) the term "Premises" shall mean the "Subleased Premises." The insurance certificate to be provided by Subtenant shall be subject to approval by Sublandlord and Master Landlord (the "***Insurance Certificate***").

13. Damage or Destruction and Condemnation. The provisions of Article 13 of the Master Lease pertaining to damage or destruction and condemnation, respectively, shall be incorporated into this Sublease, subject to the following terms. For purposes of this Sublease, the term "Tenant" in Article 13 of the Master Lease shall be deemed to mean Subtenant and the term "Landlord" therein shall be deemed to mean Master Landlord and the term "Premises" shall mean the "Subleased Premises", except that (a) in no event shall Sublandlord have any obligation to Subtenant to restore the Subleased Premises if damaged, destroyed or condemned as described in Article 13 of the Master Lease; and (b) Subtenant shall have no right to (i) terminate this Sublease due to casualty damage to or condemnation of all or any portion of the Subleased Premises unless Sublandlord has such right under the Master Lease, or (ii) any insurance proceeds or condemnation awards received by Sublandlord under the Master Lease, all of which shall be deemed to be the property of Sublandlord. Subtenant hereby (A) waives (I) any and all provisions of applicable Laws that provide alternative rights for the parties in the event of damage or destruction (including, without limitation, the provisions of California Civil Code Section 1932, Subsection 2, and Section 1933, Subsection 4, and any successor statute or laws of a similar nature), and (II) any rights it may have pursuant to any applicable Laws in the event of a condemnation (including, without limitation, Section 1265.130 of the California Code of Civil Procedure and any successor statutes); and (B) agrees that the provisions of this Section 13 shall govern the parties' rights in the event of any casualty and/or condemnation.

14. Events of Default. The occurrence of any of the following shall constitute a material breach of this Sublease and a default by Subtenant ("***Default***"): (i) Subtenant's failure to pay Rent within three (3) days of the date due; provided, however that Sublandlord will give Subtenant notice and an opportunity to cure any failure to pay Rent within three (3) days of any such notice not more than twice in any twelve (12) month period; provided, further, that any such notice shall be in lieu of, and not in addition to, any notice required under California Code of Civil Procedure Section 1161; (ii) all those items of default set forth in the Master Lease where the obligation is incorporated in this Sublease, including, without limitation, the Defaults listed in Article 11 of the Master Lease, which remain uncured after the cure period provided in the Master Lease; (iii) Subtenant shall attempt or there shall occur any Transfer in contravention of this Sublease or the Master Lease; or (iv) Subtenant's failure to perform any other term, provision or covenant of this Sublease, which failure remains uncured after fifteen (15) days written notice thereof; provided that, subject to Section 16(b) below, if the failure is of a nature that reasonably requires more than fifteen (15) days, to cure,

the cure period shall be extended so long as the cure is commenced within such period and diligently prosecuted to completion.

15. Remedies. Upon any Default by Subtenant under the terms of this Sublease, beyond any applicable notice and cure period, Sublandlord shall have the remedies set forth in Article 11 of the Master Lease (which rights are hereby incorporated by reference into the terms of this Sublease) as if Sublandlord were Master Landlord, including, without limitation, the right to terminate this Sublease, in which case Subtenant shall immediately surrender the Subleased Premises to Sublandlord. If Subtenant fails to surrender the Subleased Premises, Sublandlord may, in compliance with applicable Laws and without prejudice to any other right or remedy, enter upon and take possession of the Subleased Premises. In addition to the right to terminate this Sublease and collect damages, Sublandlord shall have the right to pursue any other remedy provided under the Master Lease or that is now or hereafter available at law or in equity. No right or remedy conferred upon or reserved to Sublandlord is intended to be exclusive of any other right or remedy, and each and every right and remedy shall be cumulative and in addition to any other right or remedy given hereunder or now or hereafter existing by agreement, Laws, or in equity.

16. Sublandlord Representations, Warranties and Covenants; Master Lease.

(a) Sublandlord represents and warrants the following is true and correct as of the Effective Date: (i) Sublandlord is the tenant under the Master Lease and has the capacity to enter into this Sublease with Subtenant subject to the Sublease Contingency, (ii) the Master Lease attached as **Exhibit B**, is a true, correct, and complete copy of the Master Lease, is in full force and effect, and has not been further modified, amended, or supplemented except as expressly set out herein, (iii) Sublandlord has not received any notice, and has no actual knowledge of any default by Sublandlord under the Master Lease, including without limitation as to any covenants related to Hazardous Materials, (iv) Sublandlord has no actual knowledge, of any default by Master Landlord under the Master Lease. Sublandlord covenants that it will maintain the Master Lease during the entire Sublease Term, subject, however, to any earlier termination of the Master Lease without the fault of Sublandlord. Sublandlord hereby covenants not to enter into any amendment or other agreement with respect to the Master Lease without the prior written consent of the Subtenant.

(b) Subtenant takes possession of the Subleased Premises, and enters into this Sublease, subject and subordinate to all of the terms, covenants, conditions, and restrictions of the Master Lease, except as otherwise expressly provided for herein. Subtenant's use of the Subleased Premises, the Building, and the Project shall be subject and subordinate to all of the terms, covenants, conditions, and restrictions of the Sublease and the Master Lease, except as otherwise expressly provided for herein. Subtenant shall not, and shall not permit Subtenant Parties to, by act or omission cause a breach of any of the terms, covenants, conditions, and restrictions contained in this Sublease or the Master Lease. Except as specifically set forth herein, with respect to any obligation of Subtenant to be performed under this Sublease, wherever the Master Lease grants to Sublandlord a specified number of days after notice or other time condition to perform its corresponding obligation under the Master Lease (excluding the payment of Rent), Subtenant shall have one-fourth fewer days (rounded to the nearest whole day) to perform the obligation, including without limitation curing any defaults. Any default notice or other notice of any obligations (including any billing or invoice for any Rent or any other expense or charge due under the Master Lease) from Master Landlord which is received by Subtenant (whether directly or as a result of being forwarded by Sublandlord) shall constitute such notice from Sublandlord to Subtenant under this Sublease without the need for any additional notice from Sublandlord.

(c) It is expressly understood, acknowledged and agreed by Subtenant that all of the other terms, conditions and covenants of this Sublease shall be those stated in the Master Lease except as excluded or modified below in this Section 16(c). Except as otherwise set forth in this Sublease, Subtenant shall be subject to, bound by and comply with all of said Sections of the Master Lease with respect to the Subleased Premises and shall satisfy all applicable terms and conditions of the Master Lease for the benefit of Sublandlord and Master Landlord, it being understood and agreed (except as otherwise expressly set forth in this Sublease), however, that (i) wherever in the Master Lease the word "Tenant" appears, for the purposes of this Sublease, the word "Subtenant" shall be substituted, wherever the word "Landlord" appears, for the purposes of this Sublease, the word "Sublandlord" shall be substituted, wherever the word "Lease" appears, for purposes of this Sublease, the word "Sublease" shall be substituted, and wherever the word "Premises" appears, for the purposes of this Sublease, the word "Subleased Premises" shall be substituted, and wherever the word "Term" appears, for purposes of this Sublease, the words "Sublease Term" shall be substituted; (ii) Sublandlord shall have no liability to Subtenant with respect to (w) representations and warranties made by Master Landlord under the Master Lease, (x) any indemnification obligations of Master Landlord under the

Master Lease, (y) obligations or liabilities of Master Landlord under the Master Lease with respect to compliance with laws, condition of the Subleased Premises or Hazardous Materials, or (z) obligations under the Master Lease to repair, maintain, restore, or insure all or any portion of the Subleased Premises, regardless of whether the incorporation of one or more provisions of the Master Lease might otherwise operate to make Sublandlord liable therefor; (iii) in any case where "Tenant" is to indemnify, release or waive claims against "Landlord", such indemnity, release or waiver shall be deemed to run from Subtenant to Master Landlord and Sublandlord; (iv) whenever the provisions of the Master Lease incorporated as provisions of this Sublease require the written consent of Master Landlord, said provisions shall be construed to require the written consent of Master Landlord and Sublandlord; (v) whenever the provisions of the Master Lease incorporated as provisions of this Sublease require the written consent of Tenant, said provisions shall be construed to require the written consent of Subtenant; and (vi) in any case where Master Landlord is to indemnify, release or waive claims against "Tenant", such indemnity, release or waiver shall be deemed to run from Master Landlord and Sublandlord to Subtenant. In the event of any conflict between this Sublease, on the one hand, and the Master Lease, on the other hand, the terms of this Sublease shall control as between Sublandlord and Subtenant. Subtenant hereby acknowledges that it has read and is familiar with all the terms of the Master Lease. In addition to any other provisions contained in this Sublease which specifically state that certain provisions of the Master Lease are not incorporated into this Sublease or are otherwise modified as described in such other provisions, the terms and provisions of the following Sections and portions of the Master Lease are not incorporated into this Sublease or are modified as provided for below: (A) the following provisions of the Master Lease are expressly not incorporated herein by reference: the definition of "Base Rent," "Applicable Monthly Base Rent," "Security Deposit," "Sublease Term," and "Commencement Date," are not a part of this Sublease; the definition of "Monthly Base Rent," "Security Deposit," "Lease Term" and "Commencement Date," as the same appear in the Master Lease, are not part of this Sublease; Section 2.1, Section 2.2, Section 2.3, Section 2.6, Section 2.7, Section 2.8, Article 3, Article 5, Article 22 and Section 24(b), all of the Master Lease, are not part of (and not incorporated into) this Sublease; the references to "Landlord" in Section 8.1, Section 16.3, Article 14 and Article 15 of the Master Lease shall be deemed to mean "Master Landlord,"; and Exhibits B, B-1 and B-2 to the Master Lease are not part of (and are not incorporated into) this Sublease.

(d) Sublandlord shall have no liability to Subtenant on account of any failure of Master Landlord to observe or perform any of the terms, covenants or conditions of the Master Lease required to be observed or performed by Master Landlord. Sublandlord, upon Subtenant's written request, shall use commercially reasonable efforts to cause the Master Landlord to perform its obligations under the Master Lease (including without limitation by notifying Master Landlord of Master Landlord's o failure to perform its obligations under the Master Lease if Master Landlord fails to perform same within thirty (30) days after Master Landlord has been requested to do so in writing by Subtenant) and shall use commercially reasonable efforts to cooperate with Subtenant in its efforts to obtain such performance at no cost to Sublandlord. In no event shall Sublandlord be required to initiate any legal proceedings or to incur any expense or liability in connection with such efforts.

(e) If (i) Subtenant shall fail to perform any of its obligations hereunder and such failure shall continue beyond any cure period provided for herein, or (ii) Master Landlord o shall give any notice of failure or default under the Master Lease arising out of any failure by Subtenant to perform any of its obligations hereunder, then, in any such case, Sublandlord shall have the right (but not the obligation) to enter the Subleased Premises and perform or endeavor to perform such obligation, at Subtenant's expense. Subtenant shall, within ten (10) days of Sublandlord's demand, reimburse Sublandlord for all such costs and expenses incurred by Sublandlord in doing so (plus a sum for overhead to Sublandlord equal to five percent (5%) of such costs and expenses) as Rent.

(f) Subtenant shall promptly execute, acknowledge and deliver to Sublandlord, any certificate or other document evidencing the status of the Sublease or subordination of this Sublease to the Master Lease, that Sublandlord or Master Landlord may reasonably request, in accordance with the Master Lease or this Sublease.

17. Surrender of Subleased Premises.

(a) Subtenant shall remove from the Subleased Premises on or before the expiration or earlier termination of this Sublease (i) any Alterations that are required to be removed pursuant to Section 8 of this Sublease, other than the Laboratory Conversion Work, (ii) any other improvements, alterations or fixtures in the Subleased Premises that were performed by or on behalf of Subtenant and that are required to be removed at the expiration of the term of the Master Lease pursuant to the terms therein, and (iii) Subtenant's personal property, including, without

limitation, any property that would be considered "***Required Removables***" pursuant to the terms of the Master Lease. In addition, Subtenant shall quit and surrender the Subleased Premises to Sublandlord on or before the expiration or earlier termination of this Sublease, broom clean, and in at least the same order, condition and repair as on the date received, ordinary wear and tear excepted and in accordance with the terms of the Master Lease. Conditions existing because of Subtenant's failure to perform maintenance, repairs or replacements shall not be deemed "ordinary wear and tear." If Subtenant fails to timely remove any Alterations, improvements or fixtures that are required to be removed, or any of Subtenant's personal property, Sublandlord, at Subtenant's sole cost and expense, shall be entitled (but not obligated) to remove such Alterations, improvements and/or fixtures and/or remove, store or dispose of Subtenant's personal property. Sublandlord shall not be responsible for the value, preservation or safekeeping of Subtenant's personal or other property. On the basis of the foregoing, Subtenant waives and releases its rights under Sections 1980 et. seq. and 1993 et. seq. of the California Civil Code, or any similar Laws now or hereafter in effect.

(b) At least thirty (30) days prior to Subtenant's surrender of possession of any part of the Subleased Premises, Subtenant shall provide Sublandlord with a facility decommissioning and Hazardous Materials closure plan for the Subleased Premises ("***Exit Survey***") prepared by an independent third-party, state-certified professional with appropriate expertise, which Exit Survey must be reasonably acceptable to Sublandlord. The Exit Survey shall comply with the American National Standards Institute's Laboratory Decommissioning guidelines (ANSI/AIHA Z9.11-2008) or any successor standards published by ANSI or any successor organization (or, if ANSI and its successors no longer exist, a similar entity publishing similar standards). In addition, at least ten (10) days prior to Subtenant's surrender of possession of any part of the Subleased Premises, Subtenant shall (i) provide Sublandlord with written evidence of all appropriate governmental releases obtained by Subtenant in accordance with Laws, including laws pertaining to the surrender of the Subleased Premises, (ii) place laboratory equipment decontamination forms on all decommissioned equipment to assure safe occupancy by future users, and (iii) conduct a site inspection with Sublandlord. In addition, Subtenant agrees to remain responsible after the surrender of the Subleased Premises for the remediation of any recognized environmental conditions, including those set forth in the Exit Survey and comply with any recommendations set forth in the Exit Survey. Subtenant's obligations under this Addendum shall survive the expiration or earlier termination of the Sublease.

18. Holding Over. Subtenant shall have no right to holdover in the Subleased Premises beyond the expiration or earlier termination of this Sublease. If Subtenant does not surrender and vacate the Subleased Premises as and when provided for herein, Subtenant shall be deemed to be holding over as a tenant at sufferance, and the parties agree that the Rent during such holdover period shall be one hundred seventy five percent (175%) of the Rent in effect immediately prior to such holding over. No holding over by Subtenant shall operate to extend the Sublease Term. Notwithstanding the foregoing, and in addition to all other rights and remedies on the part of Sublandlord, if Subtenant fails to surrender the Subleased Premises upon the expiration or earlier termination of this Sublease, in addition to any other liabilities to Sublandlord accruing therefrom, Subtenant shall be liable to Sublandlord for any obligations imposed by Master Landlord pursuant to the Master Lease as a result of such holding over, and Subtenant shall be responsible for all damages suffered by Sublandlord resulting from or occasioned by such holding over, including, without limitation, consequential damages (notwithstanding any limitations thereon under the Master Lease).

19. Letter of Credit. Subtenant shall deliver to Sublandlord, at Subtenant's sole cost and expense, an unconditional, irrevocable, standby letter of credit (the "***Letter of Credit***") with an initial expiration date no earlier than one (1) year after the Effective Date of this Sublease in the amount set forth in the Basic Lease Information (the "***Letter of Credit Amount***"), in the form attached hereto as **Exhibit G** or in other such form as is reasonably acceptable to Sublandlord. The Letter of Credit shall secure the full and faithful performance of each provision of this Sublease to be performed by Subtenant pursuant to the following terms and conditions.

(a) The Letter of Credit shall state on its face that, notwithstanding the stated expiration date, the term of the Letter of Credit shall be automatically renewed for successive, additional one (1) year periods during the Sublease Term through the date that is at least ninety (90) days after the last day of the Sublease Term, unless, at least ninety (90) days prior to any such date of expiration, the issuing bank shall have given written notice to Sublandlord, by certified mail, return receipt requested at the Sublandlord's Address For Notice stated in the Basic Sublease Information or such other address as Sublandlord shall have given to the issuing bank, that the Letter of Credit will not be renewed. The failure of Subtenant to cause the Letter of Credit to be renewed or reissued at least sixty (60) days prior to the expiration thereof shall constitute Default under this Sublease.

(b) The Letter of Credit shall be issued by a financial institution reasonably acceptable to Sublandlord, which financial institution shall be a bank that accepts deposits, maintains accounts, will negotiate letters of credit, and whose deposits are insured by the FDIC. The Letter of Credit must be presentable in Emeryville, California or such other United States location reasonably acceptable to Sublandlord. If the financial institution that issues the Letter of Credit makes a general assignment for the benefit of creditors, or commences any case, proceeding or other action seeking to have an order for relief entered on its behalf as a debtor or to adjudicate it as bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of it or its debts or seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or of any substantial part of its property, or loses or has its charter revoked, goes into receivership, or is otherwise taken over by any regulatory agency which oversees such issuer, then Subtenant shall, promptly, but in no event later than ten (10) days after the occurrence of such event, deliver a replacement Letter of Credit to Sublandlord in the full Letter of Credit Amount and otherwise in accordance with the requirements set forth in this Section 19, and promptly upon Sublandlord's receipt of the replacement Letter of Credit, Sublandlord shall return to Subtenant the Letter of Credit being replaced.

(c) If Subtenant fails to perform fully and timely all or any of Subtenant's covenants and obligations set forth in this Sublease, including, without limitation, Subtenant's failure to renew the Letter of Credit at least ninety (90) days prior to the expiration thereof, or if Subtenant has filed a voluntary petition under the federal bankruptcy code or an involuntary petition has been filed against Subtenant under the federal bankruptcy code, Sublandlord may, without notice to Subtenant, execute one or more drafts on the Letter of Credit and apply all or any portion of the Letter of Credit toward fulfillment of Subtenant's unperformed covenants and/or obligations, including any Rent payable by Subtenant that is not paid when due; provided, however, that a failure of Subtenant to renew the Letter of Credit in accordance with this Section 19 shall entitle Sublandlord to execute a draft for the entire amount of the Letter of Credit and such proceeds shall be deemed the property of Sublandlord until such time as Subtenant delivers a replacement Letter of Credit to Sublandlord in the full Letter of Credit Amount and otherwise in accordance with the requirements set forth in this Section 19, and promptly upon Sublandlord's receipt of the replacement Letter of Credit, Sublandlord shall apply the amount of proceeds drawn from the issuing bank upon Subtenant's failure to renew the Letter of Credit against the next due installment(s) of Base Rent under this Sublease. Any proceeds drawn shall constitute the property of Sublandlord and need not be segregated from Sublandlord's other assets. If, as a result of any application or use by Sublandlord of all or any part of the Letter of Credit, the amount of the Letter of Credit shall be less than the Letter of Credit Amount, Subtenant shall, within ten (10) days thereafter, provide Sublandlord with additional letter(s) of credit in an amount equal to the deficiency, and any such additional (or replacement) letter of credit shall comply with all of the provisions of this section and if Subtenant fails to comply with the foregoing, notwithstanding anything to the contrary contained in the Sublease, the same shall constitute an immediate Default by Subtenant.

(d) Ninety (90) days after Subtenant vacates the Subleased Premises, upon the expiration or sooner termination of this Sublease, if Subtenant is not then in default, Sublandlord shall return to Subtenant the Letter of Credit (and any unapplied cash balance of the Letter of Credit that had been previously drawn upon); provided that Sublandlord may retain the Letter of Credit (or previously drawn proceeds therefrom) until such time as any Rent (including Additional Rent) due from Subtenant for known defaults in accordance with this Sublease has been determined and paid in full by Subtenant.

(e) In no event or circumstance shall the Letter of Credit or any renewal thereof or any proceeds thereof be deemed to be or treated, or intended to serve as a "security deposit" within the meaning of any applicable law or statute. Subtenant hereby waives the provisions of any Laws which establishes the time frame by which Sublandlord must refund collateral or security for performance of a subtenant's obligations under a sublease. Subtenant agrees and acknowledges that Subtenant has no property interest whatsoever in the Letter of Credit or the proceeds thereof and that, in the event Subtenant becomes a debtor under any chapter of the Federal Bankruptcy Code, neither Subtenant, any trustee, nor Subtenant's bankruptcy estate shall have any right to restrict or limit Sublandlord's claim and/or rights to the Letter of Credit and/or the proceeds thereof by application of Section 502(b)(6) of the federal bankruptcy code or otherwise.

(f) Should the Permitted Use be amended to accommodate a change in the business of Subtenant or to accommodate a sub-subtenant or assignee, Sublandlord shall have the right to increase the Letter of Credit to the extent necessary, in Sublandlord's reasonable judgment, to account for any increased risk to the Subleased Premises or increased wear and tear that the Subleased Premises may suffer as a result thereof. If a change in control of

Subtenant occurs during the Sublease and following such change the financial condition of Subtenant is, in Sublandlord's reasonable judgment, materially reduced, Subtenant shall deposit such additional monies with Sublandlord as shall be sufficient to cause the Letter of Credit to be at a commercially reasonable level based on said change in financial condition.

(g) Subtenant acknowledges that Sublandlord has the right to transfer its interests in this Sublease. Subtenant agrees that in the event of any such transfer, Sublandlord shall have the right to transfer, assign and/or endorse the Letter of Credit to Sublandlord's master lessors, or other transferees or assignees. Subtenant shall look solely to such parties for the return of the Letter of Credit in accordance with the terms of this Sublease. Subtenant agrees further that, upon Sublandlord's written request, it shall have the Letter of Credit issued, at Subtenant's sole cost and expense, in favor of Sublandlord's master lessor or other transferee or assignee to be held by any such party in accordance with the terms of this Sublease.

20. Parking; Signage.

(a) Parking. Subtenant shall have Subtenant's proportionate share of such parking rights as Sublandlord may have in connection with the Subleased Premises, as set forth in the Master Lease. Sublandlord shall have the right to pass through to Subtenant any charges payable to Master Landlord under the Master Lease for such parking rights. Subtenant shall pay as Additional Rent all such amounts at the same time and in the same manner as Subtenant pays Base Rent pursuant to Section 4 above.

(b) Signage. Subtenant shall not, without the prior written consent of Sublandlord (which consent may be granted or withheld in its sole and absolute discretion) and Master Landlord, post, project, affix, exhibit or display any signs, notices, window or door lettering, placards, decorations, or advertising media of any type which can be viewed from the exterior of the Subleased Premises. Subtenant shall have the right to display, at Subtenant's sole cost and expense, signs bearing Subtenant's name and/or logo at specific locations within the Subleased Premises, subject to the prior written consent of Sublandlord (which consent shall not be unreasonably withheld, conditioned or delayed). Subtenant shall be entitled to Subtenant's signage rights and proportionate share of any Building standard identification signage allowed to the "Tenant" under the Master Lease at Subtenant's sole cost and expense, and subject to Laws and Sublandlord's and Master Landlord's prior written approval, of the design and location of such signage. Upon the expiration or earlier termination of this Sublease, Subtenant shall be responsible for removing any signage described above, repairing any damage caused by such removal, and restoring the area to its prior condition. Subtenant shall in no event be entitled to any exterior Building signage.

21. Limitation of Liability. None of the Sublandlord Parties shall have any personal liability for any obligation of Sublandlord under this Sublease or arising in connection herewith or with the operation, management, leasing, subleasing, repair, renovation, alteration or any other matter relating to the Project, the Building or the Subleased Premises, and Subtenant hereby expressly waives and releases such personal liability on behalf of itself and all persons claiming by, through or under Subtenant. Whenever Sublandlord transfers its interest, Sublandlord shall be automatically released from further performance under this Sublease and from all further liabilities and expenses hereunder subject to assumption by the transferee of Sublandlord's interest of all liabilities and obligations of Sublandlord hereunder from the date of such transfer.

22. Miscellaneous.

(a) All demands, approvals, consents or notices shall be in writing and delivered by hand or sent by registered or certified mail with return receipt requested, or sent by overnight or same day courier service at the party's respective Address(es) for Notice set forth above in the Basic Sublease Information. Each notice shall be deemed to have been received or given on the earlier to occur of (i) actual delivery or the date on which delivery is refused, (ii) three (3) business days after notice is deposited in the U.S. mail, one (1) business day after notice is deposited with an overnight or same day courier service in the manner described above or the date on which delivery is refused. Any party may, at any time, change its notice address (other than to a post office box address) by giving the other parties written notice of the new address.

(b) Either party's failure to declare a default immediately upon its occurrence or delay in taking action for a default shall not constitute a waiver of the default, nor shall it constitute an estoppel. If either party institutes a

suit against the other for violation of or to enforce any covenant, term or condition of this Sublease, the prevailing party shall be entitled to all of its costs and expenses, including, without limitation, reasonable attorneys' fees.

(c) This Sublease shall be interpreted and enforced in accordance with the Laws of the state in which the Subleased Premises is located.

(d) Subtenant represents and warrants to Sublandlord that it has not dealt with any broker in connection with this Sublease, other than Subtenant's Broker (if any) identified in the Basic Sublease Information. Subtenant agrees to indemnify, defend and hold Sublandlord and Sublandlord Parties party harmless from any commissions due to any broker claiming by, through or under Subtenant.

(e) The Basic Sublease Information set forth above and any Addenda, Exhibits and Schedules attached hereto are incorporated into and made a part of the Sublease. Each reference in this Sublease to any of the Basic Sublease Information shall mean the respective information above. In the event of any conflict between the Basic Sublease Information and the provisions of the Sublease, the provisions of the Sublease shall control. This Sublease constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements and understandings related to the Subleased Premises. This Sublease may be modified only by a written agreement signed by Sublandlord and Subtenant and consented to by Master Landlord.

(f) Subtenant represents and warrants that the execution, delivery, and performance by Subtenant of its obligations under this Sublease have been duly authorized and will not violate any provision of Laws, any order of any court or other agency of government, or any indenture, agreement or other instrument to which it is a party or by which it is bound.

(g) This Sublease may be executed in multiple counterparts, and by each party on separate counterparts, each of which shall be deemed to be an original but all of which shall together constitute one agreement. Signature pages may be detached from the counterparts and attached to a single copy of this document to physically form one document. This Sublease may be executed in so-called "pdf" format and each party has the right to rely upon a pdf counterpart of this Sublease signed by the other party to the same extent as if such party had received an original counterpart.

(h) Subtenant represents and warrants that neither it, nor any Subtenant Party, (i) is directly or indirectly owned or controlled by any individual or entity included on the List of Specially Designated Nationals and Blocked Persons or the Foreign Sanctions Evaders List maintained by the Office of Foreign Assets Control, Department of the Treasury ("***OFAC***") or any other governmental entity imposing economic sanctions and trade embargoes, (ii) is directly or indirectly owned or controlled by any individual or entity who is located, organized, or resident in a country or territory that is, or whose government is, the target of sanctions imposed by OFAC or any other governmental entity ("***Sanctioned Territory***"); and (iii) shall provide any technology or technical information shared between the parties to any Sanctioned Territory or entity or individual that is a citizen of a Sanctioned Territory; Subtenant shall notify Sublandlord promptly upon knowledge of a violation of the foregoing (i) through (iii).

23. California Civil Code Section 1938 Statement. To Sublandlord's actual knowledge, the Subleased Premises has not undergone an inspection by a certified access specialist. For purposes of the preceding sentence, Sublandlord's actual knowledge shall mean and be limited to the actual knowledge of the person who is Sublandlord's Chief Financial Officer (not any other person) on the Effective Date, without any duty of inquiry or investigation, and such Chief Financial Officer shall have no personal liability if such representation is untrue. California Civil Code Section 1938 provides in relevant part as follows: "A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises." Nothing in this paragraph or California Civil Code Section 1938 shall relieve or modify Subtenant's obligations with respect to (a) compliance with Laws, including without limitation any construction-related accessibility standards, as set forth elsewhere in this Sublease, including,

without limitation, Section 5(a) and Section 8 above, or (b) payment of Additional Rent as set forth in Section 4 above. Subtenant hereby agrees that any Subtenant-initiated CASp inspection (x) shall be at Subtenant's sole cost and expense, and (y) shall take place during normal business hours following reasonable prior written notice to Sublandlord and Master Landlord. Any information contained in a CASp report shall be maintained as confidential. Subtenant, at its sole cost and expense, shall be responsible for making any improvements, alterations, modifications and/or repairs to or within the Subleased Premises to correct violations of construction-related accessibility standards, including, without limitation, any violations disclosed by such CASp inspection; and if such CASp inspection identifies any improvements, alterations, modifications and/or repairs necessary to correct violations of construction-related accessibility standards relating to those items of the Building and/or the Project located outside the Subleased Premises then, at the Master Landlord's election, either Subtenant or the Master Landlord shall perform such improvements, alterations, modifications and/or repairs as and to the extent required by applicable laws to correct such violations, in either instance at Subtenant's sole cost and expense.

24. Anti-Corruption. Neither Subtenant nor any of its directors, officers, employees, or any agent, representative, subcontractor or other third party acting for or on Subtenant's behalf (collectively, "***Representatives***"), shall, directly or indirectly, offer, pay, promise to pay, or authorize such offer, promise or payment, of anything of value, to any person, governmental agency, or other entity for the purposes of obtaining any improper advantage in connection with this Sublease. Not by way of limitation of Section 5 of this Sublease, neither Subtenant nor any of its directors, officers or employees shall violate any applicable laws, rules and regulations concerning or relating to public or commercial bribery or corruption ("***Anti-Corruption Laws***"). Within five (5) business days of Sublandlord's written request, Subtenant shall execute and deliver a compliance certification (which certification may be limited to Subtenant's knowledge) with respect to Subtenant's compliance with Anti-Corruption Laws and this Section 24. If Subtenant shall breach the foregoing at any time during the Sublease Term, a Default will be deemed to have occurred, without the necessity of notice to Subtenant.

25. Confidential Information. During the Sublease Term, Sublandlord and Subtenant may each receive, obtain, or be given access to, whether directly or indirectly, including through audio or visual observation, information that relates to their respective business, finances, and/or technology (collectively, "***Proprietary Information***"), which such Proprietary Information shall include, without limitation, the existence and contents of this Sublease, the Master Lease, the Subleased Premises, the Building and the Project. Sublandlord and Subtenant shall each (i) not use the Proprietary Information for any purpose, except as is necessary to perform its obligations hereunder, (ii) not disclose any Proprietary Information, or component thereof, to any third party, (iii) within their respective organization, only disclose Proprietary Information to those Sublandlord Parties and Subtenant Parties, as applicable, who need such Proprietary Information for the purposes of performing the obligations hereunder and who are bound by obligations of confidentiality with respect to such Proprietary Information at least as protective as those contained herein, and (iv) use best efforts to protect the confidentiality of the Proprietary Information. Sublandlord and Subtenant shall each notify the other of any unauthorized use or disclosure of Proprietary Information and to take all actions reasonably necessary to prevent further unauthorized use or disclosure thereof. Sublandlord and Subtenant each also recognizes and agrees that they have no expectation of privacy with respect to Sublandlord's or Subtenant's, as applicable, telecommunications, networking or information processing systems (including, without limitation, stored computer files, email messages and voice messages) and that their respective activity, and any files or messages, on or using any of those systems may be monitored at any time without notice.

26. No Publicity. Sublandlord and Subtenant each hereby acknowledges and agrees that it shall not use, without the other's prior written approval, which may be withheld in such party's sole discretion, the name of the other party, its affiliates, trade names, trademarks or trade dress, products, or any signs, markings, or symbols from which a connection to such party may be reasonably inferred or implied, in any manner whatsoever, including, without limitation, press releases, marketing materials, or advertisements.

[Signature Page Follows]

In Witness Whereof, Sublandlord and Subtenant have executed this Sublease effective as of Effective Date above written, on the dates set forth below.

SUBLANDLORD:	**SUBTENANT:**
Dynavax Technologies Corp., a Delaware corporation	**Metagenomi, Inc.** a Delaware corporation
By: /s/ Kelly MacDonald Name: Kelly MacDonald Title: CFO	By: /s/ Jian Irish Name: Jian Irish Title: Chief Operating Officer

Exhibit 31.1

Rule 13a-14(a) Certification of 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
Chief Executive Officer and Interim Chief Financial Officer
(Principal Executive Officer)

Date: May 8, 2024

Exhibit 31.2

Rule 13a-14(a) Certification of Principal Financial 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
Chief Executive Officer and Interim Chief Financial Officer
(Principal Financial Officer)

Date: May 8, 2024

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, Ryan Spencer, Chief Executive Officer and Interim 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 March 31, 2024 (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 8th day of May 2024.

By: /S/ RYAN SPENCER

Ryan Spencer
Chief Executive Officer and Interim Chief Financial Officer
(Principal Executive Officer and 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.