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

Form 10-Q

(Mark One)

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

For the quarterly period ended June 30, 2022

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: 001-38663

Gritstone bio, Inc.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**47-4859534**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
5959 Horton Street, Suite 300 Emeryville, California	**94608**
(Address of Principal Executive Offices)	**(Zip Code)**

(510) 871-6100
(Registrant's Telephone Number, Including Area Code)

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, $0.0001 par value per share	**GRTS**	**The Nasdaq Global Select Market**

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

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

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

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

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

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

As of August 3, 2022, there were 73,006,922 shares of the registrant's common stock, par value $0.0001 per share, outstanding.

Gritstone bio, Inc.
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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Gritstone bio, Inc.
Condensed Consolidated Balance Sheets
(Unaudited)

(In thousands, except share amounts and par value)

	June 30, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	$ 65,694	$ 93,287
Marketable securities	78,939	108,346
Restricted cash	9,311	11,285
Prepaid expenses and other current assets	7,791	7,672
Total current assets	161,735	220,590
Long-term restricted cash	5,290	6,005
Property and equipment, net	22,712	21,622
Lease right-of-use assets	21,126	22,920
Deposits and other long-term assets	3,090	2,352
Long-term marketable securities	—	4,617
Total assets	$ 213,953	$ 278,106
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,381	$ 4,230
Accrued compensation	5,331	6,925
Accrued liabilities	2,035	411
Accrued research and development expenses	4,386	3,706
Lease liabilities, current portion	7,174	7,483
Deferred revenue, current portion	11,079	17,201
Total current liabilities	32,386	39,956
Lease liabilities, net of current portion	17,800	18,936
Deferred revenue, net of current portion	389	3,128
Total liabilities	50,575	62,020
Commitments and contingencies (Notes 6 and 8)		
Stockholders' equity:		
Preferred stock, $0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding at June 30, 2022 and December 31, 2021	—	—
Common stock, $0.0001 par value; 300,000,000 shares authorized at June 30, 2022 and December 31, 2021; 73,006,089 and 69,047,878 shares issued and outstanding at June 30, 2022 and December 31, 2021, respectively	20	20
Additional paid-in capital	623,583	617,523
Accumulated other comprehensive loss	(410)	(73)
Accumulated deficit	(459,815)	(401,384)
Total stockholders' equity	163,378	216,086
Total liabilities and stockholders' equity	$ 213,953	$ 278,106

See accompanying notes to the unaudited condensed consolidated financial statements.

Gritstone bio, Inc.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(Unaudited)

(In thousands, except share and per share amounts)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Revenues:				
Collaboration and license revenues	$ 2,761	$ 2,843	$ 7,506	$ 42,536
Grant revenues	2,710	—	5,156	—
Total revenues	5,471	2,843	12,662	42,536
Operating expenses:				
Research and development	27,347	22,072	55,546	46,928
General and administrative	7,792	5,937	15,747	12,878
Total operating expenses	35,139	28,009	71,293	59,806
Loss from operations	(29,668)	(25,166)	(58,631)	(17,270)
Interest income, net	153	48	200	75
Net loss	(29,515)	(25,118)	(58,431)	(17,195)
Other comprehensive gain (loss):				
Unrealized gain (loss) on marketable securities	(19)	17	(337)	14
Net and comprehensive loss	$ (29,534)	$ (25,101)	$ (58,768)	$ (17,181)
Net loss per share, basic and diluted	$ (0.34)	$ (0.33)	$ (0.68)	$ (0.23)
Weighted-average number of shares used in computing net loss per share, basic and diluted	86,448,632	76,749,641	86,363,116	76,368,506

See accompanying notes to the unaudited condensed consolidated financial statements.

Gritstone bio, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(Unaudited)

(In thousands, except share amounts)

Three Months Ended June 30, 2022:

	Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Gain (Loss)	Deficit	Equity
Balance at March 31, 2022	72,779,508	$ 20	$ 619,862	$ (391)	$ (430,300)	$ 189,191
Issuance of common stock upon exercise of stock options	33,325	—	36	—	—	36
Issuance of common stock under the ESPP	193,256	—	331	—	—	331
Stock-based compensation	—	—	3,354	—	—	3,354
Unrealized loss on marketable securities	—	—	—	(19)	—	(19)
Net loss	—	—	—	—	(29,515)	(29,515)
Balance at June 30, 2022	73,006,089	$ 20	$ 623,583	$ (410)	$ (459,815)	$ 163,378

Three Months Ended June 30, 2021:

	Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Gain (Loss)	Deficit	Equity
Balance at March 31, 2021	49,197,828	$ 18	$ 517,715	$ (3)	$ (318,379)	$ 199,351
Issuance of common stock under the ATM equity offering program, net of issuance costs of $45	170,103	—	1,620	—	—	1,620
Issuance of common stock upon exercise of stock options	65,430	—	222	—	—	222
Stock-based compensation	—	—	2,733	—	—	2,733
Unrealized gain on marketable securities	—	—	—	17	—	17
Net loss	—	—	—	—	(25,118)	(25,118)
Balance at June 30, 2021	49,433,361	$ 18	$ 522,290	$ 14	$ (343,497)	$ 178,825

Continued on next page.

See accompanying notes to the unaudited condensed consolidated financial statements.

Gritstone bio, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(Unaudited)

(In thousands, except share amounts)

Six Months Ended June 30, 2022:

	Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Gain (Loss)	Deficit	Equity
Balance at December 31, 2021	69,047,878	$ 20	$ 617,523	$ (73)	$ (401,384)	$ 216,086
Issuance of common stock for warrant exercises	3,442,567	—	34	—	—	34
Issuance of common stock upon restricted stock units vesting	215,350	—	—	—	—	—
Tax payments related to shares withheld for vested restricted stock units	—	—	(890)	—	—	(890)
Issuance of common stock upon exercise of stock options	107,038	—	100	—	—	100
Issuance of common stock under the ESPP	193,256	—	331	—	—	331
Stock-based compensation	—	—	6,485	—	—	6,485
Unrealized loss on marketable securities	—	—	—	(337)	—	(337)
Net loss	—	—	—	—	(58,431)	(58,431)
Balance at June 30, 2022	73,006,089	$ 20	$ 623,583	$ (410)	$ (459,815)	$ 163,378

Six Months Ended June 30, 2021:

	Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Gain (Loss)	Deficit	Equity
Balance at December 31, 2020	47,552,693	$ 18	$ 493,023	$ —	$ (326,302)	$ 166,739
Offering costs related to the sale of common stock and pre-funded warrants	—	—	(451)	—	—	(451)
Issuance of common stock under Sales Purchase Agreement, net of issuance costs of $330	1,169,591	—	20,839	—	—	20,839
Issuance of common stock under the ATM equity offering program, net of issuance costs of $45	170,103	—	1,620	—	—	1,620
Issuance of common stock upon exercise of stock options	431,410	—	2,046	—	—	2,046
Issuance of common stock under the ESPP	109,564	—	279	—	—	279
Stock-based compensation	—	—	4,934	—	—	4,934
Unrealized gain on marketable securities	—	—	—	14	—	14
Net loss	—	—	—	—	(17,195)	(17,195)
Balance at June 30, 2021	49,433,361	$ 18	$ 522,290	$ 14	$ (343,497)	$ 178,825

See accompanying notes to the unaudited condensed consolidated financial statements.

Gritstone bio, Inc.
Condensed Consolidated Statements of Cash Flows
(Unaudited)

(In thousands)

	Six Months Ended June 30,	
	2022	**2021**
Operating activities		
Net loss	$ (58,431)	$ (17,195)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	3,093	3,193
Net amortization of premiums and discounts on marketable securities	309	342
Stock-based compensation	6,485	4,934
Non-cash operating lease expense	4,655	3,822
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(119)	(1,251)
Deposits and other long-term assets	(738)	(247)
Accounts payable	(1,437)	416
Accrued compensation	(1,594)	(1,546)
Accrued and other non-current liabilities	363	(166)
Accrued research and development expenses	680	946
Lease liability	(4,193)	(3,922)
Deferred revenue	(8,861)	(1,354)
Net cash used in operating activities	(59,788)	(12,028)
Investing activities		
Purchase of marketable securities	(28,341)	(127,139)
Maturities of marketable securities	61,719	16,037
Sales of marketable securities	—	675
Purchase of property and equipment	(3,265)	(2,660)
Net cash provided by (used in) investing activities	30,113	(113,087)
Financing activities		
Proceeds from issuance of common stock from public offering	—	21,170
Proceeds from issuance of common stock upon exercise of stock options, warrants, and other	134	2,046
Proceeds from issuance of common stock under the ATM equity offering program	—	1,666
Proceeds from issuance of common stock under the ESPP	331	279
Payments of financing costs	(69)	(6,021)
Payments of financing lease	(113)	—
Tax payments related to shares withheld for vested restricted stock units	(890)	—
Net cash provided by (used in) financing activities	(607)	19,140
Net decrease in cash, cash equivalents and restricted cash	(30,282)	(105,975)
Cash, cash equivalents and restricted cash at beginning of period	110,577	171,048
Cash, cash equivalents and restricted cash at end of period	$ 80,295	$ 65,073
Supplemental disclosures of non-cash investing and financing information		
Property and equipment purchases accrued but not yet paid	$ 1,662	$ 536
Financing costs included in accrued liabilities and accounts payable	$ —	$ 5
Remeasurement of operating lease right-of-use asset for lease modification	$ 1,406	$ —
Assets acquired under leasing obligations	$ —	$ 109

See accompanying notes to the unaudited condensed consolidated financial statements.

1. Organization

Description of Business

Gritstone bio, Inc. ("Gritstone" or the "Company") is a clinical-stage biotechnology company developing next generation vaccines for solid tumors and viral diseases. The Company was incorporated in the state of Delaware in August 2015, and is headquartered in Emeryville, California with a site in Cambridge, Massachusetts and a manufacturing facility in Pleasanton, California. The Company operates in one segment.

Liquidity

The Company has incurred operating losses and has an accumulated deficit as a result of ongoing efforts to develop drug product candidates, including conducting preclinical and clinical trials and providing general and administrative support for these operations. The Company had net losses of $29.5 million and $58.4 million for the three and six months ended June 30, 2022, respectively, and $25.1 million and $17.2 million for the three and six months ended June 30, 2021, respectively. During the six months ended June 30, 2022, cash used by operating activities was $59.8 million. During the six months ended June 30, 2021, cash used by operating activities was $12.0 million. The Company had an accumulated deficit of $459.8 million and $401.4 million as of June 30, 2022 and December 31, 2021, respectively. To date, none of the Company's product candidates have been approved for sale and therefore the Company has not generated any revenue from sales of commercial products. Management expects operating losses to continue for the foreseeable future. The Company has funded its operations to date primarily through private placements of its convertible preferred stock, the sale of common stock in public offerings and under an "at the market offering", the private placement of common stock and pre-funded warrants, and through proceeds received from its collaboration arrangements. As of June 30, 2022, the Company had cash, cash equivalents and marketable securities of $144.6 million, which the Company believes will be sufficient to fund its planned operations for a period of at least twelve months following the filing date of this report.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying interim condensed consolidated financial statements are unaudited and are comprised of the consolidation of the Company and its wholly-owned subsidiary. All intercompany balances and transactions have been eliminated in consolidation. The Company has no unconsolidated subsidiaries or investments accounted for under the equity method.

The accompanying interim condensed consolidated financial statements have been prepared in accordance with United States generally accepted accounting principles ("U.S. GAAP") and the rules and regulations of the Securities and Exchange Commission (the "SEC") for interim reporting.

The interim condensed consolidated financial statements are unaudited and, in the opinion of management, reflect all adjustments, consisting only of normal recurring adjustments, necessary for the fair presentation for interim reporting. The results of operations for any interim period are not necessarily indicative of results of operations for any future period.

Certain information and footnote disclosures typically included in annual financial statements prepared in accordance with U.S. GAAP have been condensed or omitted. Accordingly, these unaudited interim condensed consolidated financial statements should be read in conjunction with the Company's audited financial statements as of and for the year ended December 31, 2021, which are included in the Company's Annual Report on Form 10-K, as filed with the SEC on March 10, 2022.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosures of contingent liabilities as of the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Management bases its estimates on historical experience and on various other market-specific and relevant assumptions that management believes to be reasonable under the circumstances. Actual results could differ from those estimates.

Fair Value of Financial Instruments

U.S. GAAP establishes a fair value hierarchy for instruments measured at fair value that distinguishes between assumptions based on market data (observable inputs) and the Company's own assumptions (unobservable inputs). Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances.

Fair value is established as the exchange price, or exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As a basis for considering market participant assumptions in fair value measurements, an established three-tier fair value hierarchy distinguishes between the following:

- Level 1 inputs are quoted prices in active markets that are accessible at the market date for identical assets or liabilities.
- Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs that reflect the Company's own assumptions about the assumptions market participants would use in pricing the assets or liability. Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement.

To the extent that the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value instrument.

The carrying amounts reflected on the condensed consolidated balance sheets for cash and cash equivalents, prepaid expenses and other current assets, accounts payable, accrued compensation and accrued liabilities approximate their fair values due to their short-term nature.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist of cash, cash equivalents and marketable securities. Cash, cash equivalents and marketable securities are invested through banks and other financial institutions in the United States. Such deposits may be in excess of federally insured limits. The Company maintains cash equivalents and marketable securities with various high-credit-quality and capitalized financial institutions. The Company has not experienced any credit losses in such accounts and does not believe it is exposed to any significant credit risk on these funds.

The Company's investment policy limits investments to certain types of securities issued by the U.S. government, its agencies, and institutions with investment-grade credit ratings and places restrictions on maturities and concentration by type and issuer. The Company is exposed to credit risk in the event of a default by the financial institutions holding its cash, cash equivalents and marketable securities and issuers of marketable securities to the extent recorded on the condensed consolidated balance sheets. As of June 30, 2022, the Company has no off-balance sheet concentrations of credit risk.

Other Risks and Uncertainties

The Company is subject to a number of risks similar to those of other clinical-stage biotechnology companies, including dependence on key individuals; the need to develop commercially viable therapeutics; competition from other companies, many of which are larger and better capitalized; and the need to obtain adequate additional financing to fund the development of its products. The Company currently depends on third-party suppliers for key materials and services used in its research and development manufacturing process and is subject to certain risks related to the loss of these third-party suppliers or their inability to supply the Company with adequate materials and services.

In March 2020, the World Health Organization declared the global novel coronavirus disease ("COVID-19") outbreak a pandemic. To date, the Company's business has not been materially impacted by the COVID-19 pandemic. However, the Company has experienced slowing of patient recruitment and sample collection in its ongoing clinical trials and cannot at this time predict the specific extent, duration, or full impact that the COVID-19 pandemic will have on its financial condition and operations, including ongoing and planned clinical trials. The impact of the COVID-19 pandemic on the financial performance of the Company will depend on future developments, including the duration and spread of the outbreak and related governmental advisories and restrictions. These developments and the impact of COVID-19 on the financial markets and the overall economy are highly uncertain. If the financial markets and/or the overall economy are impacted for an extended period, the Company's results may be adversely affected.

Cash, Cash Equivalents and Restricted Cash

Cash equivalents, which consist primarily of highly liquid investments with original maturities of three (3) months or less when purchased, are stated at fair value. These assets include investments in money market funds that invest in U.S. Treasury obligations and certificates of deposit, which are stated at fair value.

The Company has issued letters of credit under certain lease agreements that have been collateralized by cash deposits for an equal amount and are recorded within short-term restricted cash and deposits and other long-term assets on the condensed consolidated balance sheets based on the term of the underlying lease. Additionally, the Company's restricted cash includes payments received under the Coalition for Epidemic Preparedness Innovations ("CEPI") Funding Agreement, dated as of August 14, 2021 (the "CEPI Funding Agreement") and the Gates Foundation Grant Agreement (see Note 8). The Company will utilize the CEPI and Gates Foundation funds as it incurs expenses for services performed under the agreements.

The following table provides a reconciliation of cash, cash equivalents and short-term and long-term 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):

	June 30, 2022	December 31, 2021
Cash and cash equivalents	$ 65,694	$ 93,287
Restricted cash	9,311	11,285
Long-term restricted cash	5,290	6,005
Total cash, cash equivalents and restricted cash	$ 80,295	$ 110,577

Leases

The Company determines whether the arrangement is or contains a lease at the inception of the arrangement and if such a lease is classified as a financing lease or operating lease. The majority of the Company's leases are classified as operating leases. Leases with a term greater than one year are included in operating lease ROU Assets, lease liabilities, current portion, and lease liabilities, net of current portion in the Company's condensed consolidated balance sheets as of June 30, 2022 and December 31, 2021. The Company has elected not to recognize on the condensed consolidated balance sheets leases with terms of one year or less. Lease liabilities and their corresponding ROU Assets are recorded based on the present value of lease payments over the expected lease term. In determining the net present value of lease payments, the interest rate implicit in lease contracts is typically not readily determinable. As such, the Company estimates the appropriate incremental borrowing rate, which is the rate that would be incurred to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment. Certain adjustments to the ROU Assets may be required for items such as initial direct costs paid or incentives received and impairment charges if we determine the ROU Asset is impaired.

The Company considers a lease term to be the non-cancelable period that it has the right to use the underlying asset, including any periods where it is reasonably assured the Company will exercise the option to extend the contract. Periods covered by an option to extend are included in the lease term if the lessor controls the exercise of that option.

The Company recognizes lease expense on a straight-line basis over the expected lease term.

The Company has elected not to separate lease and non-lease components for its leased assets and accounts for all lease and non-lease components of its agreements as a single lease component. The lease components resulting in a ROU Asset have been recorded on the condensed consolidated balance sheets and amortized as lease expense on a straight-line basis over the lease term.

Revenue Recognition

The Company performs research and development under collaboration, license, grant, and clinical development agreements. The Company's revenue primarily consists of collaboration agreements and grant agreements. At contract inception, the Company analyzes a revenue arrangement to determine the appropriate accounting under U.S. GAAP. Currently, the Company's revenue arrangements represent customer contracts within the scope of ASC Topic 606, Revenue from Contracts with Customers (Topic 606) ("ASC 606") or are subject to the contribution guidance in ASC Topic 958-605, Not-for-Profit Entities – Revenue Recognition ("ASC 958-605"), which applies to business entities that receive contributions within the scope of ASC 958-605.

For collaboration agreements, the Company analyzes to assess whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards dependent on the commercial success of such activities. This assessment is performed throughout the life of the arrangement based on changes in the responsibilities of all parties in the arrangement. For collaboration arrangements that are considered to be in the scope of the collaboration guidance and that contain multiple elements, the Company first determines which elements of the collaboration are deemed to be within the scope of the collaboration guidance and those that are more reflective of a vendor-customer relationship and, therefore, within the scope of the revenue with contracts with customers guidance. Elements of collaboration arrangements that are reflective of a vendor-customer relationship are accounted for pursuant to the revenue from contracts with customers guidance. The terms of the licensing and collaboration agreements entered into typically include payment of one or more of the following: non-refundable, up-front fees; development, regulatory, and commercial milestone payments; payments for manufacturing supply services; and royalties on net sales of licensed products. Each of these payments results in license, collaboration and other revenues, except for revenues from royalties on net sales of licensed products, which are classified as royalty revenues. The core principle of the accounting for revenue from contracts with customers guidance is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received in exchange for those goods or services.

In determining the appropriate amount of revenue to be recognized as the Company fulfills its obligations under each of its agreements, the Company performs the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations, including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation.

Amounts received prior to satisfying the revenue recognition criteria are recorded as deferred revenue in the Company's condensed consolidated balance sheets. If the related performance obligation is expected to be satisfied within the next twelve (12) months, this will be classified in current liabilities. Amounts recognized as revenue prior to receipt are recorded as contract assets in the Company's condensed consolidated balance sheets. If the Company expects to have an unconditional right to receive consideration in the next twelve (12) months, this will be classified in current assets. A net contract asset or liability is presented for each contract with a customer.

At contract inception, the Company assesses the goods or services promised in a contract with a customer and identifies those distinct goods and services that represent a performance obligation. A promised good or service may not be identified as a performance obligation if it is immaterial in the context of the contract with the customer, if it is not separately identifiable from other promises in the contract (either because it is not capable of being separated or

because it is not separable in the context of the contract), or if the performance obligation does not provide the customer with a material right.

The Company considers the terms of the contract and its customary business practices to determine the transaction price. The transaction price is the amount of consideration to which the Company expects to be entitled in exchange for transferring promised goods or services to a customer. The consideration promised in a contract with a customer may include fixed amounts, variable amounts, or both. Variable consideration will only be included in the transaction price when it is not considered constrained, which is when it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur.

If it is determined that multiple performance obligations exist, the transaction price is allocated at the inception of the agreement to all identified performance obligations, based on the relative standalone selling prices. The relative selling price for each performance obligation is estimated using objective evidence if it is available. If objective evidence is not available, the Company uses its best estimate of the selling price for the performance obligation.

Revenue is recognized when, or as, the Company satisfies a performance obligation by transferring a promised good or service to a customer. An asset is transferred when, or as, the customer obtains control of that asset, which for a service is considered to be as the services are received and used. The Company recognizes revenue over time by measuring the progress toward complete satisfaction of the relevant performance obligation, using an appropriate input or output method based on the nature of the good or service promised to the customer.

After contract inception, the transaction price is reassessed at every period end and updated for changes, such as resolution of uncertain events. Any change in the transaction price is allocated to the performance obligations on the same basis as at contract inception.

Management may be required to exercise considerable judgment in estimating revenue to be recognized. Judgment is required in identifying performance obligations, estimating the transaction price, estimating the stand-alone selling prices of identified performance obligations (which may include forecasted revenue, development timelines, reimbursement rates for personnel costs, discount rates and probabilities of technical and regulatory success) and estimating the progress towards satisfaction of performance obligations.

For grant funding agreements, grant revenue is recognized during the period that the research and development services occur, as qualifying expenses are incurred. The Company concluded that payments received under these grants represent nonreciprocal contributions, as described in ASC 958, Not-for-Profit Entities, and that the grants are not within the scope of ASC 606 as the organization providing the grant does not meet the definition of a customer. Grant revenue relates primarily to the CEPI and Gates Grant Agreements (see Note 8).

Income Taxes

On March 18, 2020, the Families First Coronavirus Response Act (the “FFCR Act”), and on March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) were each enacted in response to the COVID-19 pandemic. The FFCR Act and the CARES Act contain numerous income tax provisions relating to refundable payroll tax credits, deferment of employer side social security payments, net operating loss carryback periods, alternative minimum tax credit refunds, modifications to the net interest deduction limitations and technical corrections to tax depreciation methods for qualified improvement property.

On June 29, 2020, Assembly Bill 85 (“A.B. 85”) was signed into California law. A.B. 85 provides for a three-year suspension of the use of net operating losses for medium and large businesses and a three-year cap on the use of business incentive tax credits to offset no more than $5.0 million of tax per year. A.B. 85 suspends the use of net operating losses for taxable years 2020 and 2021 for certain taxpayers with taxable income of $1.0 million or more. The carryover period for any net operating losses that are suspended under this provision will be extended. A.B. 85 also requires that business incentive tax credits, including carryovers, may not reduce the applicable tax by more than $5.0 million for taxable years 2020 and 2021.

The FFCR Act, CARES Act and A.B. 85 did not have a material impact on the Company’s condensed consolidated financial statements as of June 30, 2022; however, the Company continues to examine the impacts the FFCR Act, CARES Act and A.B. 85 may have on its business, results of operations, financial condition, liquidity and related disclosures.

Recently Adopted Accounting Pronouncements

In October 2020, the FASB issued ASU No. 2020-10, *Codification Improvements* ("ASU 2020-10"). The standard contains improvements to the FASB Accounting Standards Codification (the "Codification") by ensuring that all guidance that requires or provides an option for an entity to provide information in the notes to financial statements is codified in the disclosure section of the Codification. The standard also improves various topics in the Codification so that entities can apply guidance more consistently on codifications that are varied in nature where the original guidance may have been unclear. The amendments in ASU 2020-10 are effective for the Company for fiscal years beginning after December 15, 2021, and interim periods within fiscal years beginning after December 15, 2022. Early adoption is permitted. We adopted ASU 2020-10 on January 1, 2022 and the adoption did not have a material impact on the Company's condensed consolidated financial statements and related disclosures.

Recently Issued Accounting Pronouncements Not Yet Adopted

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and Other Options* (Subtopic 470-20) and *Derivatives and Hedging - Contracts in Entity's Own Equity* ("ASU 2020-06"). The standard eliminates the beneficial conversion and cash conversion accounting models for convertible instruments. It also amends the accounting for certain contracts in an entity's own equity that are currently accounted for as derivatives because of specific settlement provisions. In addition, the standard modifies how particular convertible instruments and certain contracts that may be settled in cash or shares impact the diluted EPS computation. The amendments in ASU 2020-06 are effective for the Company as defined by the SEC for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but not earlier than fiscal years beginning after December 15, 2020. The Company does not expect the adoption of ASU 2020-06 to have a material impact on its condensed consolidated financial statements and related disclosures.

3. Cash Equivalents and Marketable Securities

The amortized costs, unrealized gains and losses and fair values of cash equivalents and marketable securities were as follows (in thousands):

	June 30, 2022			
Description	**Amortized Cost**	**Unrealized Gains**	**Unrealized Losses**	**Fair Value**
Cash equivalents:				
Money market funds	$ 48,525	$ —	$ —	$ 48,525
Commercial paper	801	—	—	801
Total cash equivalents	49,326	—	—	49,326
Short-term marketable securities:				
Certificates of deposit	3,750	—	(34)	3,716
Commercial paper	23,239	—	(106)	23,133
Corporate debt securities	12,316	—	(83)	12,233
U.S. treasuries	32,777	—	(170)	32,607
U.S. government debt securities	2,000	—	(2)	1,998
Asset backed securities	5,267	—	(15)	5,252
Total short-term marketable securities	79,349	—	(410)	78,939
Total	$ 128,675	$ —	$ (410)	$ 128,265

Description	December 31, 2021 Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents:				
Money market funds	$ 79,281	$ —	$ —	$ 79,281
Commercial paper	1,000	—	—	1,000
Corporate debt securities	1,031	—	—	1,031
Total cash equivalents	81,312	—	—	81,312
Short-term marketable securities:				
Certificates of deposit	5,600	—	(6)	5,594
Commercial paper	44,990	—	(16)	44,974
Corporate debt securities	26,976	—	(23)	26,953
U.S. treasuries	12,277	—	(8)	12,269
U.S. government debt securities	2,000	—	(1)	1,999
Asset backed securities	16,565	—	(8)	16,557
Total short-term marketable securities	108,408	—	(62)	108,346
Long-term marketable securities:				
Corporate debt securities	1,637	—	(6)	1,631
U.S. treasuries	2,991	—	(5)	2,986
Total long-term marketable securities	4,628	—	(11)	4,617
Total	$ 194,348	$ —	$ (73)	$ 194,275

All marketable securities held as of June 30, 2022 had contractual maturities of less than one year. There have been no material realized gains or losses on marketable securities for the periods presented. As of June 30, 2022, the Company did not hold any individual securities in an unrealized loss position for 12 months or greater. The Company has the ability and intent to hold all marketable securities that have been in a continuous loss position until maturity or recovery. No significant facts or circumstances have arisen to indicate that there has been any significant deterioration in the creditworthiness of the issuers of the securities held by us. The Company considered the current and expected future economic and market conditions and determined that the estimate of credit losses was not significantly impacted. Thus, no credit loss existed as of or for the six months ended June 30, 2022 or the six months ended June 30, 2021. The Company will continue to assess the current and expected future economic and market conditions as further development arises.

See Note 4 for further information regarding the fair value of the Company's financial instruments.

4. Fair Value Measurements

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

Description	June 30, 2022 Total	Level 1	Level 2	Level 3
Cash equivalents:				
Money market funds	$ 48,525	$ 48,525	$ —	$ —
Commercial paper	801	—	801	—
Total cash equivalents	49,326	48,525	801	—
Short-term marketable securities:				
Certificates of deposit	3,716	—	3,716	—
Commercial paper	23,133	—	23,133	—
Corporate debt securities	12,233	—	12,233	—
U.S. treasuries	32,607	32,607	—	—
U.S. government debt securities	1,998	—	1,998	—
Asset backed securities	5,252	—	5,252	—
Total short-term marketable securities	78,939	32,607	46,332	—
Total	$ 128,265	$ 81,132	$ 47,133	$ —

Description	December 31, 2021 Total	Level 1	Level 2	Level 3
Cash equivalents:				
Money market funds	$ 79,281	$ 79,281	$ —	$ —
Commercial paper	1,000	—	1,000	—
Corporate debt securities	1,031	—	1,031	—
Total cash equivalents	81,312	79,281	2,031	—
Short-term marketable securities:				
Certificates of deposit	5,594	—	5,594	—
Commercial paper	44,974	—	44,974	—
Corporate debt securities	26,953	—	26,953	—
U.S. treasuries	12,269	12,269	—	—
U.S. government debt securities	1,999	—	1,999	—
Asset backed securities	16,557	—	16,557	—
Total short-term marketable securities	108,346	12,269	96,077	—
Long-term marketable securities:				
Corporate debt securities	1,631	—	1,631	—
U.S. treasuries	2,986	2,986	—	—
Total long-term marketable securities	4,617	2,986	1,631	—
Total	$ 194,275	$ 94,536	$ 99,739	$ —

The Company measures the fair value of money market funds and U.S. treasuries based on quoted prices in active markets for identical securities. Commercial paper, corporate debt securities, certificates of deposits, asset backed securities, and U.S. government debt securities are valued taking into consideration valuations obtained from third-party pricing services. These pricing services utilize industry standard valuation models, including both income and market-based approaches, for which all significant inputs are observable, either directly or indirectly, to estimate fair value. These inputs include reported trades of, and broker/dealer quotes on, the same or similar securities, issuer credit spreads; benchmark securities; prepayment/default projections based on historical data; and other observable inputs.

There were no transfers between Level 1 and Level 2 during the periods presented. See Note 3 for further information regarding the amortized cost of our financial instruments.

5. Property and Equipment, Net

Property and equipment and related accumulated depreciation and amortization are as follows (in thousands):

	June 30, 2022	December 31, 2021
Computer equipment and software	$ 998	$ 987
Furniture and fixtures	2,285	2,113
Laboratory equipment	25,181	24,679
Leasehold improvements	14,224	14,128
	42,688	41,907
Less accumulated depreciation and amortization	(25,342)	(22,276)
Construction-in-progress	5,366	1,991
Total property and equipment, net	$ 22,712	$ 21,622

Depreciation and amortization expense was $1.5 million and $3.1 million for the three and six months ended June 30, 2022, respectively, and $1.6 million and $3.2 million for the three and six months ended June 30, 2021, respectively.

6. Commitments and Contingencies

Leases

The Company leases office, laboratory and storage space in facilities at several locations.

Emeryville Lease

The Company's principal executive offices in Emeryville, California, consisting of office and laboratory space, are leased pursuant to a 120-month operating lease (the "Emeryville Lease"), which the Company entered into in January 2019, with the obligation to pay rent commencing in November 2019. In conjunction with signing the Emeryville Lease, the Company paid a cash security deposit of $0.6 million, which is recorded as a deposit on the Company's condensed consolidated balance sheet as of June 30, 2022. The Emeryville Lease includes a free rent period, an escalation clause for increased rent and a renewal provision allowing the Company to extend this lease for an additional two five-year periods at the then market rental rate. The lessor provided the Company a tenant improvement allowance for a total of $4.0 million to complete the laboratory and office renovation. The Company has determined the tenant improvements to be lessee owned and therefore has recorded a $8.4 million ROU Asset and a $13.4 million lease liability on the condensed consolidated balance sheet as of June 30, 2022. The Company recorded a $8.7 million ROU Asset and a $13.9 million lease liability on the condensed consolidated balance sheet as of December 31, 2021.

Pleasanton Leases

The Company leases 42,620 square feet of office, cleanroom, and laboratory support manufacturing space in Pleasanton, California pursuant to a non-cancelable operating lease (the "Pleasanton Lease"), which the Company entered into in March 2017, with the obligation to pay rent commencing in December 2017. The Pleasanton Lease includes a free rent period, escalating rent payments and a term that expires on November 30, 2024. The Company may extend the lease term for a period of five years at the then market rental rate. The Company obtained an irrevocable letter of credit in March 2017 in the initial amount of approximately $1.0 million as a security deposit to the Pleasanton Lease, which may be drawn down by the landlord in the event the Company fails to fully and faithfully perform its obligations under the Pleasanton lease. The letter of credit may be reduced based on certain levels of cash and cash equivalents the Company holds. As of June 30, 2022, none of the irrevocable letter of credit amount had been drawn. The Pleasanton Lease further provides that the Company is obligated to pay to the landlord its proportionate share of certain basic operating costs, including taxes and operating expenses.

In connection with the Pleasanton Lease, the Company received a tenant improvement allowance of $1.2 million from the landlord for the costs associated with the design, development and construction of tenant improvements. The unamortized tenant improvement balance is recognized as a component of operating lease ROU Assets on the condensed consolidated balance sheets as of June 30, 2022 and December 31, 2021.

In addition, in May 2019, the Company entered into a 64-month non-cancelable operating lease for additional office space in Pleasanton, California, with an obligation to pay rent commencing in August 2019. In January 2022, the Company amended the lease to add additional leased space and extend the lease expiration date to February 2027.

Cambridge Leases

The Company leases laboratory, office and storage space in several facilities in Cambridge, Massachusetts, pursuant to three separate agreements:

The Company's facility located at 40 Erie Street in Cambridge, Massachusetts is leased pursuant to a 67-month non-cancelable operating lease (the "40 Erie Lease"), which the Company entered into in February 2016, with an obligation to pay rent commencing in October 2016. The lessor provided the Company a tenant improvement allowance for a total of $2.1 million to complete the laboratory and office renovation. In September 2021, the Company executed an amendment to the 40 Erie Lease, which extends its term through April 2025 and provides for monthly base rent amounts, subject to annual increases over the term of the lease.

The Company's facility located at 21 Erie Street in Cambridge, Massachusetts is leased pursuant to a 24-month non-cancelable operating lease (the "21 Erie Lease"), which the Company entered into in September 2018. The 21 Erie Lease has since been amended four times, as a result of which the lease term extends through June 2023.

In March 2021, the Company entered into a 17-month operating lease (the "Cambridge Storage Lease") for additional office and laboratory storage space in Cambridge, Massachusetts, which commenced on April 1, 2021. The

Company also paid an insignificant cash security deposit. The Cambridge Storage Lease was amended in June 2022 to extend the lease term through June 30, 2023.

In conjunction with the 40 Erie Lease, the 21 Erie Lease and the Cambridge Storage Lease, each as amended (if applicable), the Company has paid certain cash security deposits, which in each case included amounts for the applicable last month's rent and has been classified as part of the operating lease ROU Assets. Of the $0.7 million security deposits, $0.4 million was recorded in prepaids and other assets on the Company's condensed consolidated balance sheet and the remaining $0.3 million was recorded in deposits and other long-term assets on the Company's condensed consolidated balance sheet as of June 30, 2022. Security deposits of $0.7 million are recorded in deposits and other long-term assets on the Company's condensed consolidated balance sheet as of December 31, 2021.

Boston Lease

The Company plans to occupy a newly-built facility in Boston, Massachusetts, with office and laboratory space, in 2023 pursuant to a 120-month operating lease (the "Boston Lease"), which the Company entered into in September 2021. The Boston Lease includes a free rent period, an escalation clause for increased rent and a renewal provision allowing the Company to extend the Boston Lease for two additional five-year periods at the then market rental rate. The landlord provided the Company with a tenant improvement allowance of up to approximately $19.1 million for costs relating to the design, permitting and construction of improvements. The Company's obligation to pay rent is expected to commence in the second half of 2023, subject to free rent periods of three and six months with respect to certain premises. The Company expects to be provided early access to the premises to install fixtures and equipment 60 days prior to the anticipated rent commencement date. The Boston Lease is expected to expire in 2033. The Boston Lease further provides that the Company is obligated to pay to the landlord its proportionate share of certain basic operating costs, including taxes and operating expenses. In connection with the Boston Lease and as a security deposit thereunder, the Company has provided the landlord an irrevocable letter of credit in the amount of approximately $4.6 million, which is collateralized by a restricted cash deposit of $4.7 million, and which may be reduced in the fifth and seventh years of the Boston Lease. As of June 30, 2022, none of the irrevocable letter of credit amount had been drawn.

As of June 30, 2022, the Company has not recognized a ROU Asset or lease liability for the Boston Lease as it did not control the underlying assets at any time in the six months ended June 30, 2022. Under the Boston Lease, the Company is obligated to make minimum lease payments of approximately $79.1 million for the years from 2023 to 2033, which includes rent abatement during the free rent periods.

The Company's operating leases include various covenants, indemnities, defaults, termination rights, security deposits and other provisions customary for lease transactions of this nature.

The components of lease costs, which were included in our condensed consolidated statements of operations and comprehensive income (loss), were as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Lease cost				
Operating lease cost	$ 2,268	$ 1,922	$ 4,521	$ 3,822
Total lease cost	$ 2,268	$ 1,922	$ 4,521	$ 3,822

Supplemental information related to leases was as follows:

	Six Months Ended June 30,	
	2022	2021
Cash paid for amounts included in the measurement of lease liabilities (in thousands):		
Operating cash flows from operating leases	$ 4,193	$ 3,922
New right-of-use assets obtained in exchange for lease obligations (in thousands):		
Operating leases	$ 781	$ 109
Weighted-average remaining lease term (years):		
Operating leases	5.1	6.0
Weighted-average discount rate:		
Operating leases	7.4%	9.0%

As of June 30, 2022, minimum annual rental payments under the Company's lease agreements are as follows (in thousands):

	Lease Financing Obligation
Year ending December 31,	
2022 (remaining six months)	$ 5,448
2023	8,016
2024	12,527
2025	10,658
2026	10,376
Thereafter	62,813
Total minimum payments	109,838
Less: Amounts representing interest expense	(5,751)
Less: Amounts representing lease payments under the Boston Lease	(79,113)
Present value of future minimum lease payments	24,974
Less: Current portion of lease liability	(7,174)
Noncurrent portion of lease liability	$ 17,800

Agreements with CROs

In September 2017, the Company entered into a contract research and development agreement with a third-party contract research organization ("CRO") to provide research, analysis and antibody samples to further the Company's development of its antibody drug candidates. In June 2022, the Company notified the CRO of its intent to terminate the agreement effective in August 2022. The Company is also obligated to pay the CRO certain milestone payments of up to an aggregate of $36.4 million on achievement of specified events. None of these events had occurred as of June 30, 2022. During the three and six months ended June 30, 2022, the Company had no research and development expense under the agreement. During the three and six months ended June 30, 2021, the Company had immaterial research and development expense under the agreement.

In May 2019, the Company entered into a contract research and testing agreement with another third-party CRO to provide antibody discovery related services. In March 2022, the Company notified that CRO of its intent to terminate the agreement effective in May 2022. Under the agreement, the Company is obligated to pay the CRO certain milestone payments of up to $34.8 million on achievement of specified events. None of these events had occurred as of June 30, 2022. No research and development expense was recorded under the agreement during the three and six months ended June 30, 2022 and 2021.

Guarantees and Indemnifications

The Company, as permitted under Delaware law and in accordance with its certificate of incorporation and bylaws, and pursuant to indemnification agreements with certain of its officers and directors, indemnifies its officers and directors for certain events or occurrences, subject to certain limits, with respect to which the officer or director is or was serving at the Company's request in such capacity. The term of the indemnification period lasts as long as an officer or director may be subject to any proceeding arising out of acts or omissions of such officer or director in such capacity. The maximum amount of potential future indemnification is unlimited; however, the Company currently holds director and officer liability insurance. This insurance limits the Company's exposure and may enable it to recover a portion of any future amounts paid. The Company believes that the fair value of these indemnification obligations is minimal. Accordingly, the Company has not recognized any liabilities relating to these obligations for any period presented.

7. Balance Sheet Components

Prepaid Expenses and Other Current Assets

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

	June 30, 2022	December 31, 2021
Prepaid research and development-related expenses	$ 5,292	$ 2,672
Net contract asset	—	1,385
Collaboration receivable	485	688
Prepaid insurance	651	1,769
Interest and other receivables	190	292
Facilities-related deposits	383	—
Other	790	866
Total prepaid expenses and other current assets	$ 7,791	$ 7,672

Deposits and Other Long-Term Assets

Deposits and other long-term assets consist of the following (in thousands):

	June 30, 2022	December 31, 2021
Lease security deposits	$ 934	$ 1,305
Prepaid research and development-related expenses	563	1,047
Prepaid rent	1,593	—
Total deposits and other long-term assets	$ 3,090	$ 2,352

8. Collaboration and License Agreements and Grant Revenue

2seventy bio, Inc.

In August 2018, the Company entered into a Research Collaboration and License Agreement with bluebird bio, Inc. (“bluebird”). In November 2021, bluebird assigned the Research Collaboration and License Agreement (the “2seventy Agreement”), to its affiliate, 2seventy bio, Inc. (“2seventy”), in connection with bluebird's restructuring and subsequent spin-out of 2seventy. Under the terms of the 2seventy Agreement, the Company provides to 2seventy tumor-specific targets across several tumor types and, in certain cases, T cell receptors (TCR) directed to those targets. The Company received a non-refundable upfront payment of $20.0 million, and 2seventy also concurrently acquired 768,115 shares of the Company’s Series C convertible preferred stock for $10.0 million at $13.04 per share. Per the 2seventy Agreement, 2seventy was also provided an option to acquire shares of the Company’s common stock at the same price as all other investors in connection with the Company’s initial public offering (“IPO”). In October 2018, 2seventy purchased 666,667 shares of the Company’s common stock at the price to the public of $15.00 per share for a total of $10.0 million. Under the terms of the 2seventy Agreement, the Company is eligible to earn development, regulatory, and sales-based milestones in an amount of up to $1.2 billion, and single-digit royalties on sales of products that utilize the technology subject to the 2seventy Agreement. None of these events had occurred as of December 31, 2021, and no royalties were due from the sale of licensed products.

In August 2019, the Company entered into a First Amendment to the 2seventy Agreement, which extended the timeline for the Company and 2seventy to execute a Patient Selection Services Agreement from within one year to within two years after the Effective Date of the 2seventy Agreement. In August 2020, the Company entered into a Second Amendment, which extended the timeline of the Patient Selection Services Agreement to within three years and also extended the Tissue Analysis Period from February 28, 2021 to June 30, 2021. In April 2021, the Company entered into a Third Amendment, which removed the Patient Selection Services Agreement in its entirety and extended the Tissue Analysis Period from June 30, 2021 to December 31, 2021. The amendments were entered into for administrative purposes, and the Company determined the amendments were not a modification of contract under the contract with customers guidance.

2seventy may terminate the 2seventy Agreement by giving a 120-day prior written notice to the Company at any time after the effective date of the agreement. Unless terminated early, the agreement has a term that ends upon the last payment owed by the Company on a licensed product. The 2seventy Agreement may be terminated for cause by either party based on uncured material breach by the other party or bankruptcy of the other party. Upon early termination, all ongoing activities under the agreement and all mutual collaboration, development and commercialization licenses and sublicenses will terminate. The licenses granted by the Company to 2seventy under the licensed intellectual property will remain in effect in accordance with their respective terms. Additionally, all of 2seventy's payment obligations that have not yet accrued related to future milestone and royalty payments will be reduced by 50% for the remainder of the agreement term.

The Company concluded that 2seventy is a customer, and the contract is not subject to guidance on collaborative arrangements. This is because the Company granted 2seventy a license to the Company's intellectual property and provided research and development services, all of which are outputs of the Company's ongoing activities, in exchange for consideration.

The Company identified the following three material promises under the 2seventy Agreement: (i) transfer of a license to intellectual property and related technology know-how ("License and Know-How"); (ii) the obligation to perform target selection and TCR generation services ("Research and Development Services"); and (iii) participation on the Joint Steering Committee (the "JSC"). The Company provided to 2seventy standard indemnification and protection of licensed intellectual property, which is part of assurance that the license meets the contract's specifications and is not an obligation to provide goods or services.

The Company considered that the License and Know-How has standalone functionality, was considered to be functional intellectual property, and is capable of being distinct. However, the Company determined that the License and Know-How is not distinct from the Research and Development Services or participation on the JSC within the context of the 2seventy Agreement, because 2seventy is dependent on the Company to execute the Research and Development Services and participate on the JSC in order for 2seventy to benefit from the License and Know-How. As such, the License and Know-How is combined with the Research and Development Services and participation on the JSC into a single performance obligation, and the transaction price under this arrangement will be allocated to this single performance obligation.

The Company has also determined that all other goods or services that are contingent upon 2seventy reaching various milestones are not considered performance obligations at the inception of the arrangement.

The transaction price at the inception of the 2seventy Agreement consisted of the upfront payment of $20.0 million and the $10.0 million received from 2seventy for the purchase of the Company's Series C convertible preferred stock. The sale of the Series C convertible preferred stock was not considered to be a performance obligation, as it was a separate financing component of the transaction. Accordingly, $10.0 million of the transaction price was allocated to the issuance of 768,115 shares of Series C convertible preferred stock at fair value of $13.04 per share and recorded in stockholders' equity.

The variable consideration related to the remaining development, regulatory, and sales-based milestones payments has not been included in the initial transaction price and continues to be fully constrained as of December 31, 2021. As part of its evaluation of the constraint, the Company considered numerous factors, including that receipt of the milestones is outside the control of the Company and contingent upon initiation of clinical trials for early-stage targets and 2seventy's development efforts. Any variable consideration related to sales-based milestones (including royalties) will be recognized when the related sales occur, as they were determined to relate predominantly to the License and Know-How granted to 2seventy. The Company will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

For revenue recognition purposes, the Company determined that the duration of the 2seventy Agreement began on the effective date in August 2018 and ends upon completion of the Research and Development Services, which is also when the participation on the JSC is no longer an obligation. The contract duration is defined as the period in which parties to the contract have present enforceable rights and obligations. The Company also analyzed the impact of 2seventy terminating the agreement prior to August 2023 and determined, considering both quantitative and qualitative factors, that there were substantive non-monetary penalties to 2seventy for doing so.

Revenue is recognized when, or as, the Company satisfies its performance obligation by transferring the promised services to 2seventy. Revenue is being recognized over time using a cost-based input method, based on internal labor cost effort to perform the research services, since the internal labor cost incurred over time is thought to

best reflect the transfer of services to 2seventy. In applying a cost-based input method of revenue recognition, we use actual costs incurred relative to budgeted costs to fulfill the combined performance obligation. A cost-based input method of revenue recognition requires us to make estimates of costs to complete the performance obligation. The cumulative effect of any revisions to estimated costs to complete the performance obligation will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

The Company recognized $2.3 million and $6.3 million, respectively, during the three and six months ended June 30, 2022, and $0.7 million and $1.4 million, respectively, during the three and six months ended June 30, 2021 in collaboration revenue under the 2seventy Agreement. The amount of collaboration revenue recognized during the three and six months ended June 30, 2022 included a cumulative catch-up adjustment increasing contribution revenue by $2.0 million and $5.5 million, respectively, due to revisions to estimated costs to complete the remaining performance obligation. The adjustment resulted in a decrease in the Company's loss from operations of $2.0 million and a decrease in loss per share of $0.02 for the three months ended June 30, 2022 and a decrease in the Company's loss from operations of $5.5 million and a decrease in loss per share of $0.06 for the six months ended June 30, 2022. Deferred revenue of $2.4 million and $8.7 million was recorded on the condensed consolidated balance sheets in both current and long-term liabilities as of June 30, 2022 and December 31, 2021, respectively. Deferred revenue relates to the performance obligations identified under the 2seventy Agreement and will be recognized over the period the performance obligations are expected to be satisfied, which is currently estimated to be through September 2023.

Changes in the deferred revenue balance during the six months ended June 30, 2022 for the 2seventy Agreement are as follows (in thousands):

	Deferred Revenue
Balance at December 31, 2021	$ 8,725
Additions	—
Deductions	(6,294)
Balance at June 30, 2022	$ 2,431

There were no receivables or net contract assets recorded as of June 30, 2022 and December 31, 2021 associated with the 2seventy Agreement.

Gilead Sciences, Inc.

In January 2021, the Company entered into a Collaboration, Option and License Agreement (the “Gilead Collaboration Agreement”) with Gilead Sciences, Inc. (“Gilead”) to research and develop a vaccine-based immunotherapy as part of Gilead’s efforts to find a curative treatment for HIV infection. Under the terms of the Gilead Collaboration Agreement, the Company granted to Gilead an exclusive, worldwide license to develop and commercialize a HIV-specific therapeutic vaccine utilizing the Company’s technology. Gilead is responsible for conducting all development and commercialization activities beginning with a Phase 1 study, and the Company is responsible for contributing to preclinical research studies and participation in a joint steering committee (collectively, “research and development activities”). Concurrently with the execution of the Gilead Collaboration Agreement, the Company and Gilead entered into a Supply Agreement (the “Gilead Supply Agreement”) under which the Company will supply research product and GMP product (“Product Supply”) that may be required under the Gilead Collaboration Agreement until Gilead completes its first GMP product batch, and the Company will participate in a joint manufacturing team (collectively, “product supply activities”). In addition, the Company also concurrently entered into a Stock Purchase Agreement (the “Gilead Stock Purchase Agreement”) under which Gilead acquired, in a private placement transaction, 1,169,591 shares of the Company’s common stock. The common shares were issued to Gilead with certain registration rights and certain standstill and market stand-off provisions. The Company determined that these concurrent contracts represent a combined arrangement (the “Gilead Arrangement”).

Under the Gilead Collaboration Agreement, the Company received a non-refundable upfront payment of $30.0 million. Under the Gilead Collaboration Agreement and the Gilead Supply Agreement, the Company will receive additional reimbursement payments for expenses incurred in the research and development activities and product supply activities. Under the Gilead Stock Purchase Agreement, the common shares were sold at a price of $25.65 per share for a total of $30.0 million. The Company’s common stock at fair value on closing was $18.10 per share. If Gilead decides to move forward with development beyond the initial Phase 1 study (the “Option”), the Company will

receive a $40.0 million non-refundable option fee and will be eligible to receive up to an aggregate of $685.0 million if certain clinical, regulatory and commercial milestones are achieved, as well as tiered royalties ranging from the mid-single digits to low double-digits on net sales of a therapeutic product utilizing its technology. None of these events had occurred as of June 30, 2022 and no royalties were due from the sale of licensed products.

Gilead may terminate the Gilead Collaboration Agreement for convenience by giving a 90-day prior written notice to the Company at any time after the effective date of the agreement. Unless terminated early, the agreement has a term that ends upon the expiration of the royalty term, or, if the Option is not exercised, by the end of the Option term. The Gilead Collaboration Agreement may be terminated for cause by either party based on uncured material breach by the other party, insolvency of the other party, or patent challenge. Upon early termination, all ongoing activities under the agreement and all mutual collaboration, development and commercialization licenses and sublicenses will terminate. The licenses granted by the Company to Gilead under the licensed intellectual property will remain in effect in accordance with their respective terms. Additionally, if terminated early by Gilead for convenience or by the Company for material breach or insolvency, all of Gilead's payment obligations for reimbursable costs or for future milestone and royalty payments remain. If terminated early by Gilead for material breach or insolvency, all of Gilead's unaccrued payment obligations related to future milestone and royalty payments will be reduced by 50% for the remainder of the agreement term. Furthermore, Gilead may terminate the Gilead Supply Agreement without cause by giving six months prior written notice and any active orders with 60-day notice without terminating the agreement, and either party may terminate based on an uncured material breach, insolvency of the other party, or in the event that the Gilead Collaboration Agreement is terminated. Upon termination, the Company will deliver all supply products that have been produced and destroy, reimburse or deliver materials that Gilead has reimbursed, and Gilead must pay for any manufacturing costs that the Company has actually incurred or committed to pay, including any cancellation costs owed to subcontractors.

The Company concluded that Gilead is a customer and therefore revenue recognition should be accounted for in accordance with ASC 606, because the Company granted to Gilead licenses to its intellectual property and will provide research and development services and Supply of Product, as defined below, all of which are outputs of the Company's ongoing activities, in exchange for consideration. The Option, if exercised by Gilead, will be considered a modification that increases the scope of the arrangement beyond the Option Term.

The Company identified the following performance obligations under the Gilead Collaboration Agreement: (i) licenses including an exclusive (in the HIV field), royalty-free, worldwide collaboration license and transfer of know-how and an exclusive (in the HIV field) worldwide, royalty-bearing development and commercial license subject to restrictions on its use during the Option Term and an exclusive option to release such restrictions; (ii) preclinical research and development activities, manufacturing-related activities, and participation on a Joint Steering Committee; and (iii) product supply, including research and GMP product, until Gilead completes its first GMP batch, and participation on a Joint Manufacturing Team.

The Company considered that the licenses and know-how have standalone functionality, are considered to be functional intellectual property and are capable of being distinct. The Company also determined that the research and development activities and product supply by Gritstone could be provided by resources otherwise available to Gilead and thus are capable of being distinct.

The Company has also determined that the pricing for optional goods and services and release of license restrictions upon exercise of the Option do not constitute material rights and are not a potential performance obligation. The Company evaluated whether there is an interdependence between the promises and determined that the licenses are a combined solution and the predominant performance obligation, while the other promises are separately identifiable in the context of the contract; however, the research and development activities are dependent on the research product supply, which is accounted for as a combined performance obligation. As a result, the Company identified three performance obligations in the Gilead Arrangement: (i) exclusive licenses and know-how, (ii) research and development activities and product supply, and (iii) GMP product supply.

The transaction price at the inception of the Gilead Collaboration Agreement consisted of the upfront payment of $30.0 million and the $30.0 million received for the sale of the Company's common stock. The sale of the common stock was not considered to be a performance obligation, as it was a separate financing component of the transaction. Accordingly, $21.2 million of the transaction price was allocated to the issuance of 1,169,591 shares of the Company's common stock at fair value on closing of $18.10 per share and recorded in stockholders' equity. The remaining $8.8 million of the common stock purchase price in excess of the fair value of the shares received is added to the transaction price for the Gilead Collaboration Agreement. In addition, the initial transaction price includes estimated variable

consideration for budgeted reimbursement of research and development costs and product supply. The variable consideration related to reimbursable costs and product supply has been constrained as of June 30, 2022 based on the current research and development plan forecast. The Company will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

The Company determined that the variable consideration for the $40.0 million option exercise fee and for the development, regulatory, and sales-based milestones payments were probable of significant revenue reversal as their achievement was highly dependent on factors outside the Company's control. As a result, these payments were fully constrained and were not included in the transaction price. Any variable consideration related to sales-based milestones (including royalties) will be recognized when the related sales occur, as they were determined to relate predominantly to the exclusive licenses and know-how granted to Gilead.

The transaction price is allocated to the performance obligation based upon relative standalone selling prices, which were determined for the exclusive licenses and know-how using an adjusted market approach and for the research and development activities and product supply using a cost plus reasonable margin approach. Variable consideration is allocated to the specific performance obligations to which it relates.

For revenue recognition purposes, the Company determined that the duration of the contract began on the effective date in January 2021 and ends upon (i) the completion of the Option term, which is expected to end two to four years after the effective date, if the Option is not exercised or (ii) the expiration of the royalty-term on a product-by-product and country-by-country basis. The Company also analyzed the impact of Gilead terminating the agreement prior to the end of the Option term and determined, considering both quantitative and qualitative factors, that there were substantive non-monetary penalties to Gilead for doing so.

Revenue for the exclusive licenses and know-how was recognized on the effective date of the Gilead Collaboration Agreement at the point in time that the licenses are effective. The research and development activities and product combined performance obligation and the GMP product supply performance obligation are recognized over time when, or as, the Company transfers the promised goods and services to Gilead. Research and development service and product supply revenues will be recognized over time using a cost-based input method, based on internal and external labor cost effort to perform the services, costs to acquire research materials, and costs of product supply, since the costs incurred over time are thought to best reflect the transfer of goods and services to Gilead. In applying a cost-based input method of revenue recognition, we use actual costs incurred relative to estimated total costs to fulfill each performance obligation. A cost-based input method of revenue recognition requires us to make estimates of costs to complete the performance obligation. The cumulative effect of any revisions to estimated costs to complete the performance obligation and associated variable consideration will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the three and six months ended June 30, 2022, the Company did not record any license revenue. For the three and six months ended June 30, 2022, the Company recorded $0.5 million and $1.2 million, respectively, as collaboration revenue as a result of satisfying its performance obligations by transferring the promised goods and services estimated by the costs incurred for the Gilead Collaboration Agreement. For the three months ended June 30, 2021, the Company did not record any license revenue, while $38.6 million was recognized as license revenue for the six months ended June 30, 2021. For the three and six months ended June 30, 2021, the Company recognized $2.2 million and $2.5 million as collaboration revenue as a result of satisfying its performance obligations by transferring the promised goods and services estimated by the costs incurred for the Gilead Collaboration Agreement. There was no contract asset recorded on the condensed consolidated balance sheet as of June 30, 2022. A contract asset of $1.4 million was recorded on the condensed consolidated balance sheet as of December 31, 2021 for supply costs that were incurred during the year ended December 31, 2021, but not billable until future periods when the asset is released. The contract asset relates to the performance obligations yet to be satisfied identified under the Gilead Collaboration Agreement. There was $0.1 million recorded as deferred revenue as of June 30, 2022 and no deferred revenue as of December 31, 2021 associated with the Gilead Collaboration Agreement.

Changes in the contract asset and deferred revenue balance during the six months ended June 30, 2022 for the Gilead Collaboration Agreement are as follows (in thousands):

	Contract Asset	Deferred Revenue
Balance at December 31, 2021	$ 1,385	$ —
Additions	123	122
Deductions	(1,508)	—
Balance at June 30, 2022	$ —	$ 122

There was $0.5 million and $0.7 million of receivables recorded on the condensed consolidated balance sheet as a current asset in the prepaid expenses and other current assets balance as of June 30, 2022 and December 31, 2021, respectively, associated with the Gilead Collaboration Agreement.

The Company deferred $0.1 million in incremental costs to acquire the Gilead Collaboration Agreement in the first quarter of 2021 allocated to performance obligations recognized over time, which will be recognized over time in each period proportionate to revenue recognition. As of June 30, 2022, deferred contract acquisition costs were zero. Deferred contract acquisition costs amortized during the three and six months ended June 30, 2022 and 2021 were negligible.

Arbutus Biopharma Corporation

In October 2017, the Company entered into an Exclusive License Agreement with Arbutus Biopharma Corporation ("Arbutus") and its wholly-owned subsidiary, Protiva Biotherapeutics Inc. Certain terms of this agreement were modified by an amendment in July 2018 (such amended license agreement, the "Arbutus License Agreement"). Under the Arbutus License Agreement, Arbutus granted the Company exclusive license rights under certain intellectual property related to Arbutus' lipid nanoparticle ("LNP") technology. During the three and six months ended June 30, 2022 and 2021, the Company had no research and development expense under the Arbutus License Agreement. The Company is obligated to pay Arbutus certain milestone payments up to $123.5 million on achievement of specified events, and royalties on sales of its licensed products. Following the acceptance of our investigational new drug application for GRANITE by the U.S. Food and Drug Administration (the "FDA"), the Company made a $2.5 million development milestone payment to Arbutus in September 2018 that was recorded as research and development expense. In August 2019, a milestone was met following the initial patient treatment of SLATE in the Company's GO-005 clinical trial. In 2019, the Company recorded $3.0 million as research and development expense in connection with the milestone. None of the other events had occurred as of June 30, 2022, and no royalties were due from the sale of licensed products.

Non-Profit Hospital Cancer Center

In January 2016, the Company entered into an Exclusive License Agreement with a non-profit hospital cancer center. Under the license agreement, the Company has an exclusive license to utilize certain patents and know-how relating to immunotherapy for an insignificant upfront payment, cash milestone payments on achievement of specified events, and a low single digit royalty on sales of licensed products. The achievement of the milestones and payment of royalties is dependent upon obtaining regulatory approval. Upon achievement of a milestone related to the Company's Phase 1 clinical trial for GRANITE, GO-004, in December 2018 the Company recorded an insignificant amount to research and development expense for amounts owed to the Hospital Cancer Center, which was paid to the hospital in February 2019. None of the other milestone events had occurred as of June 30, 2022 and no royalties were due from the sales of licensed products.

Genevant Sciences GmbH

In October 2020, the Company entered into an Option and License and Development Agreement (the "2020 Genevant License Agreement") with Genevant Sciences GmbH ("Genevant"), pursuant to which Genevant granted the Company exclusive license rights under certain intellectual property related to Genevant's LNP technology for a single therapeutic indication, and the Company agreed to pay Genevant an initial payment of $2.0 million, up to an aggregate of $71.0 million in specified development, regulatory, and commercial milestones, and low to mid-single digit royalties on net sales of licensed products. The upfront payment of $2.0 million was included in research and development expense for the year ended December 31, 2020. The 2020 Genevant License Agreement expands Gritstone's intellectual property rights to such LNP technology originally obtained pursuant to the Company's license

agreement with Arbutus. Genevant is a spin-off of Arbutus. Prior to the 2020 Genevant License Agreement, the Company licensed Arbutus' LNP technology for indications in the oncology space. The remainder of Arbutus' IP portfolio was transferred to Genevant in the spin-off. In March 2022, a milestone in the amount of $1.0 million was met, which was included in research and development expense for the six months ended June 30, 2022.

Pursuant to the 2020 Genevant License Agreement, Genevant also granted the Company certain options to license the LNP technology for additional therapeutic indications of up to $1.5 million for each indication and $1.0 million to extend the option term. The 2020 Genevant License Agreement continues in effect until the last to expire royalty term or early termination. It is terminable by the Company for convenience with 90 days prior written notice or immediately if based on certain product safety or efficacy or regulatory criteria. Either party may terminate the agreement for material breach, subject to a cure period, and Genevant may terminate the agreement if the Company challenges a licensed patent.

In January 2021, the Company entered into a Non-Exclusive License and Development Agreement (the "2021 Genevant License Agreement") with Genevant. Pursuant to the 2021 Genevant License Agreement, the Company obtained a nonexclusive license to Genevant's LNP technology to develop and commercialize self-amplifying RNA ("samRNA") vaccines against SARS-CoV-2, the virus that causes COVID-19. Under the 2021 Genevant License Agreement, the Company made a $1.5 million upfront payment to Genevant, and Genevant is eligible to receive from the Company up to an aggregate of $141.0 million in contingent milestone payments per product, plus certain tiered royalties, upon achievement of development and commercial milestones. In certain scenarios, in lieu of milestones and royalties, Genevant will be entitled to a percentage of amounts that the Company receives from sublicenses under the 2021 Genevant License Agreement, subject to certain conditions. In March 2021, a milestone in the amount of $1.0 million was met following the initial patient treatment in the Phase 1 clinical trial conducted through the NIAID-supported Infectious Diseases Clinical Research Consortium ("IDCRC"). Both the $1.5 million upfront and $1.0 million milestone payments were recorded as research and development expense for the six months ended June 30, 2021. None of the other milestone events had occurred as of June 30, 2022.

Coalition for Epidemic Preparedness Innovations

On August 14, 2021, the Company entered into the CEPI Funding Agreement with CEPI, under which CEPI agreed to provide funding of up to $20.6 million to the Company to advance the Company's program, which is developing a second-generation COVID-19 vaccine, with an initial clinical trial in South Africa. Under the terms of the agreement, CEPI will fund a multi-arm Phase 1 study evaluating the CORAL program's samRNA vaccine in naïve, convalescent, and HIV+ patients. The study will evaluate two different samRNA vaccine constructs that each target both the spike protein and other SARS-CoV-2 targets and are designed to drive both robust B and T cell immune responses. The funding will also support pre-clinical studies, scale-up and formulation development to enable manufacturing of large quantities of stable vaccine product.

Under the terms of the CEPI Funding Agreement, among other things, the Company and CEPI agreed on the importance of global equitable access to the vaccine produced pursuant to the CEPI Funding Agreement. The vaccine, if approved, is expected to be made available to the COVAX Facility for procurement and allocation. The COVAX Facility aims to deliver equitable access to COVID-19 vaccines for all countries, at all levels of development, that wish to participate.

The scope and continuation of the CEPI Funding Agreement may be amended depending on ongoing developments of the COVID-19 outbreak and the success of the Company's COVID-19 vaccine candidate developed under the CEPI Funding Agreement relative to other third-party COVID-19 vaccine candidates or treatments. If the World Health Organization ("WHO"), CEPI or a regulatory authority having jurisdiction over a clinical trial performed under the CEPI Funding Agreement determines that a third-party product candidate has substantially greater potential than the Company's COVID-19 vaccine candidate developed under the CEPI Funding Agreement and should be prioritized instead for a particular trial, the Company must consider in good faith any written request of CEPI not to proceed with a clinical trial of such COVID-19 vaccine candidate (the determination of whether to proceed or not with such trial shall be made by the Company in its sole discretion). In addition, CEPI has the right to unilaterally terminate the CEPI Funding Agreement upon prior written notice if CEPI determines that (i) there are material safety, regulatory, scientific misconduct or ethical issues with the project undertaken by the Company under the CEPI Funding Agreement, (ii) the project undertaken by the Company under the CEPI Funding Agreement should be terminated, (iii) the Company becomes unable to discharge its obligations under the CEPI Funding Agreement, (iv)

the Company fails to meet certain criteria set forth in the CEPI Funding Agreement, or (v) the Company commits fraud or a financial irregularity, as such terms are defined in the CEPI Funding Agreement.

In December 2021, the Company and CEPI entered into an amendment to the CEPI Funding Agreement, under which CEPI agreed to provide additional funding up to $5.0 million, for a total of up to $25.6 million, to the Company to conduct a Phase I clinical trial of the Company's Omicron vaccine candidate in South Africa.

CEPI advances grant funds upon request by the Company consistent with the agreed upon amounts and schedules as provided in the CEPI Funding Agreement. The first tranche of funding of $11.3 million was received in September 2021 and the second tranche of funding of $2.7 million was received in April 2022.

Payments received in advance that are related to future performance are deferred and recognized as grant revenue when the research and development activities are performed. Cash payments received under the CEPI Funding Agreement are restricted as to their use until expenditures contemplated in the funding agreement are incurred. During the three and six months ended June 30, 2022, the Company recognized grant revenue of $2.4 million and $4.7 million, respectively, under the CEPI Funding Agreement. In the year ended December 31, 2021, the Company recognized grant revenue of $1.5 million under the CEPI Funding Agreement. As of June 30, 2022 and December 31, 2021, short term deferred revenue of $7.2 million and $9.4 million, respectively, was recorded on the condensed consolidated balance sheet. Deferred revenue will be recognized over the period in which the funding agreement activities related to the first tranche of funding are expected to take place, which is currently estimated to be through the first half of 2023. As of June 30, 2022 and December 31, 2021, $7.2 million and $9.4 million, respectively, was recorded as short-term restricted cash on the condensed consolidated balance sheet.

Changes in the deferred revenue balance during the six months ended June 30, 2022 for the CEPI Funding Agreement are as follows (in thousands):

	Deferred Revenue
Balance at December 31, 2021	$ 9,379
Additions	2,698
Deductions	(4,857)
Balance at June 30, 2022	$ 7,220

Gates Foundation

In November 2021, the Company entered into a Grant Agreement with the Gates Foundation (the “Gates Grant Agreement”), under which the Company will develop an optimal immunogen in the context of a therapeutic human papillomavirus (“HPV”) vaccine. In consideration for the work to be performed, the Gates Foundation provided the Company with an upfront payment of $2.2 million in December 2021, and future funding of $1.0 million is expected to be received by the Company in the first quarter of 2023, for a total grant amount of up to $3.2 million.

Payments received in advance that are related to future performance are deferred and recognized as grant revenue when the research and development activities are performed. Cash payments received under the Gates Grant Agreement are restricted as to their use until expenditures contemplated in the funding agreement are incurred. The Company did not recognize any grant revenue under the Gates Grant Agreement in 2021. During the three and six months ended June 30, 2022, the Company recognized $0.3 million and $0.5 million, respectively, in revenue under the Gates Grant Agreement. As of June 30, 2022, short-term deferred revenue of $1.7 million was recorded on the condensed consolidated balance sheet. Deferred revenue will be recognized over the period in which the funding agreement activities related to the first tranche of funding are expected to take place, which is currently estimated to be through the first half of 2023.

Changes in the deferred revenue balance during the six months ended June 30, 2022 for the Gates Grant Agreement are as follows (in thousands):

	Deferred Revenue
Balance at December 31, 2021	$ 2,225
Additions	—
Deductions	(530)
Balance at June 30, 2022	$ 1,695

9. Stockholders' Equity

The Company's amended and restated certificate of incorporation provides for 300,000,000 shares of common stock and 10,000,000 shares of preferred stock authorized for issuance, each with a par value of $0.0001 per share.

As of June 30, 2022 and December 31, 2021, no shares of preferred stock were issued and outstanding.

As of June 30, 2022 and December 31, 2021, there were 73,006,089 and 69,047,878 shares of common stock issued and outstanding, respectively. Holders of the Company's common stock are entitled to one vote per share.

Sale of Common Stock and Pre-Funded Warrants

In October 2019, the Company filed a Registration Statement on Form S-3 (the "2019 Shelf Registration Statement") with the SEC, covering the offering of up to $250.0 million of common stock, preferred stock, debt securities, warrants and units. The 2019 Shelf Registration Statement included a prospectus supplement covering the issuance and sale of up to $75.0 million of the Company's common stock, from time to time, through the "at-the-market" offering program (the "2019 ATM Offering Program") under the Securities Act of 1933, as amended (the "Securities Act"). The SEC declared the 2019 Shelf Registration Statement effective on November 8, 2019.

In connection with the 2019 ATM Offering, in October 2019, the Company entered into a sales agreement (the "2019 Sales Agreement") with Cowen and Company, LLC ("Cowen"), pursuant to which Cowen acts as its sales agent and, from time to time, offers and sells shares of the Company's common stock having an aggregate offering price of up to $75.0 million. Cowen is entitled to compensation for its services equal to up to 3.0% of the gross proceeds of any shares of common stock sold under the 2019 Sales Agreement. In addition, the Company agreed to reimburse a portion of Cowen's expenses in connection with the 2019 ATM Offering up to $50,000. During the year ended December 31, 2021, the Company issued and sold 3,990,869 shares of its common stock through its 2019 ATM Offering Program and received net proceeds of approximately $9.8 million, net of commissions and other offering costs. During the six months ended June 30, 2022, there have been no sales of shares of the Company's common stock through its 2019 ATM Offering Program.

In December 2020, the Company entered into two private placement financing transactions (collectively, the "First PIPE Financing"), as follows: (i) to sell 5,543,351 shares of its common stock at a price of $3.34 per share and pre-funded warrants (the "Warrants") to purchase 27,480,719 shares of common stock at a price of $3.34 per share (of which $3.33 per share was prepaid by each purchaser), and (ii) to sell an additional 4,043,127 shares of its common stock at a price per share of $3.71. In connection with the First PIPE Financing, the Company received aggregate net proceeds of approximately $119.8 million. The Warrants are exercisable upon issuance at an exercise price of $0.01 per share.

The outstanding Warrants generally may not be exercised if the holder's aggregate beneficial ownership would be more than 9.99% of the total issued and outstanding shares of the Company's common stock following such exercise. The exercise price and number of shares of common stock issuable upon the exercise of the Warrants (the "Warrant Shares") are subject to adjustment in the event of any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described in the Warrant agreements. Under certain circumstances, the Warrants may be exercisable on a "cashless" basis. In connection with the issuance and sale of the common stock and Warrants, the Company granted the purchasers certain registration rights with respect to the Warrants and the Warrant Shares.

The Warrants were classified as a component of permanent stockholders' equity within additional paid-in-capital and were recorded at the issuance date using a relative fair value allocation method. The Warrants are equity classified because they are freestanding financial instruments that are legally detachable and separately exercisable from the equity instruments, are immediately exercisable, do not embody an obligation for the Company to repurchase its shares, permit the holders to receive a fixed number of common shares upon exercise, are indexed to the Company's common stock and meet the equity classification criteria. In addition, such Warrants do not provide any guarantee of value or return. The Company valued the Warrants at issuance, concluding their sales price approximated their fair value, and allocated net proceeds from the sale proportionately to the common stock and Warrants, of which $87.7 million, net of issuance costs, was allocated to the Warrants and recorded as a component of additional paid-in-capital.

In September 2021, the Company completed a PIPE financing transaction, in which it sold 5,000,000 shares of its common stock at a price of $11.00 per share pursuant to a securities purchase agreement entered into on September 16, 2021 (the "Second PIPE Financing"). The Company received aggregate net proceeds of approximately $52.7 million after deducting placement agent commissions and offering expenses payable by the Company. In connection with the issuance and sale of the common stock, the Company filed a registration statement with the SEC registering the resale of the shares of common stock issued in the Second PIPE Financing.

In March 2022, the Company filed a Registration Statement on Form S-3 with the SEC (the "2022 Shelf Registration Statement"), covering the offering of up to $250.0 million of common stock, preferred stock, debt securities, warrants and units. The 2022 Shelf Registration Statement included a prospectus supplement covering the issuance and sale of up to $100.0 million of the Company's common stock, from time to time, through the "at-the-market" offering program (the "2022 ATM Offering Program") under the Securities Act. The SEC declared the 2022 Shelf Registration Statement effective as of May 6, 2022.

In connection with the 2022 ATM Offering, in March 2022, the Company also entered into a sales agreement (the "2022 Sales Agreement") with Cowen, pursuant to which Cowen will act as its sales agent and, from time to time, offer and sell shares of the Company's common stock having an aggregate offering price of up to $100.0 million. Cowen is entitled to compensation for its services equal to up to 3.0% of the gross proceeds of any shares of common stock sold under the 2022 Sales Agreement. In addition, the Company agreed to reimburse a portion of Cowen's expenses in connection with the 2022 ATM Offering up to $50,000. As of June 30, 2022, there have been no sales of shares of the Company's common stock under the 2022 ATM Offering Program.

Common Stock Warrants

As of June 30, 2022, the following warrants to purchase shares of the Company's common stock were issued and outstanding:

Issue Date	Expiration Date	Exercise Price	Number of Warrants Outstanding
December 28, 2020	None	$ 0.01	13,573,704

During the six months ended June 30, 2022, 3,442,567 warrants were exercised resulting in the Company issuing 3,442,567 shares of common stock. No warrants were exercised during the three and six months ended June 30, 2021.

10. Stock-Based Compensation

Award Incentive Plans

In August 2015, the Company's board of directors approved the 2015 Equity Incentive Plan ("2015 Plan"). In connection with the Company's IPO and the effectiveness of the 2018 Award Incentive Plan ("2018 Plan"), discussed below, the 2015 Plan terminated. The 92,815 shares of common stock that were then unissued and available for future issuance under the 2015 Plan became available under the 2018 Plan.

In September 2018, the Company's board of directors approved the 2018 Plan. Under the 2018 Plan, a total of 2,690,000 shares of common stock were initially reserved for issuance under the 2018 Plan, plus the number of shares remaining available for future awards under the 2015 Plan, as of the effective date of the 2018 Plan. The number of shares of common stock reserved for issuance under the 2018 Plan will automatically increase on January 1 of each year, beginning on January 1, 2019 and continuing through and including January 1, 2028, by 4% of the total number of shares of the Company's outstanding stock on December 31 of the preceding calendar year, or a lesser number of shares determined by the Company's board of directors. The 2018 Plan provides, among others, for the grant of options, stock appreciation rights, restricted stock awards, restricted stock unit awards and performance bonus awards.

The maximum number of shares that may be issued upon the exercise of stock options under the 2018 Plan is 45,000,000.

The Company's board of directors has the authority to determine to whom options will be granted, the number of shares, the term, and the exercise price. If an individual owns stock representing 10% or more of the outstanding

shares, the price of each share shall be at least 110% of the fair market value, as determined by the board of directors. Options granted have a term of up to 10 years and generally vest over a 4-year period with a straight-line vesting.

Material Features of the 2021 Employment Inducement Incentive Award Plan

In April 2021, the Company's board of directors adopted the 2021 Employment Inducement Incentive Award Plan (the "2021 Plan"), pursuant to Nasdaq Listing Rule 5635(c)(4). The principal purpose of the 2021 Plan is to enhance our ability to attract, retain and motivate employees who are expected to make important contributions to us by providing such individuals with equity ownership opportunities. Awards granted under the 2021 Plan are intended to constitute "employment inducement awards" under Nasdaq Listing Rule 5635(c)(4), and, as such, the 2021 Plan is intended to be exempt from the Nasdaq Listing Rules regarding shareholder approval of stock option and stock purchase plans. A total of 790,400 shares of our common stock ("Share Limit") were initially reserved for issuance under the 2021 Plan. The Share Limit may be increased by the Company's board of directors. The 2021 Plan provides for the grant of non-qualified stock options, restricted stock units, restricted stock awards, stock appreciation rights, and other stock-based and cash-based awards. The 2021 Plan does not provide for the grant of incentive stock options. Awards under the 2021 Plan may be granted to eligible employees who are either new employees or who are commencing employment with the Company or one of its subsidiaries following a bona fide period of non-employment with the Company, and for whom such awards are granted as a material inducement to commencing employment with the Company or one of its subsidiaries. Awards under the 2021 Plan may not be granted to the Company's consultants or non-employee directors.

The 2021 Plan is administered by our board of directors and, to the extent the Company's board of directors delegates its authority to it, the Company's compensation committee. In the event of a change in control in which the Company's successor refuses to assume or substitute any outstanding award under the 2021 Plan, the vesting of such award will accelerate in full. The Company's board of directors may terminate, amend, or modify the 2021 Plan at any time, provided that no termination or amendment may materially impair any rights under any outstanding award under the 2021 Plan without the consent of the holder.

On April 21, 2022, the Company's board of directors increased the number of shares available under the 2021 Plan by 700,000 shares.

Stock Option Activity

A summary of the 2018 Plan and 2021 Plan activity is as follows:

		Options Outstanding			
	Number of Shares Available for Issuance	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Balance at December 31, 2021	3,459,187	5,107,335	$ 9.82	8.13	$ 17,153
Authorized	3,461,915	—	$ —		
Granted	(2,970,684)	2,620,511	$ 5.06		
Exercised	—	(107,038)	$ 0.94		
Cancelled	628,973	(551,163)	$ 9.17		
Balance at June 30, 2022	4,579,391	7,069,645	$ 8.23	8.41	$ 506
Vested and exercisable at June 30, 2022		2,660,656	$ 9.12	7.29	$ 367
Vested and expected to vest at June 30, 2022		6,389,314	$ 8.34	8.32	$ 481

For the six months ended June 30, 2022 and 2021, the total intrinsic value of stock option awards exercised was $0.3 million and $4.2 million, respectively, determined at the date of option exercise, and the total cash received upon exercise of stock options was not significant for either period. The aggregate intrinsic value was calculated as the difference between the exercise prices of the underlying stock option awards and the estimated fair value of the common stock on the date of exercise.

As of June 30, 2022, $20.2 million of total unrecognized compensation cost related to non-vested employee and consultant options is expected to be recognized over a weighted-average period of 2.5 years. The total fair value of shares vested during the six months ended June 30, 2022 was $3.0 million.

Stock-based compensation expense and awards granted to non-employees were immaterial for the six months ended June 30, 2022 and 2021.

Restricted Stock Units

We have granted restricted stock unit awards under the 2018 Equity Plan. Our restricted stock unit awards have a term of up to 10 years and generally vest over a 1 or 2-year period. The following table summarizes our restricted stock unit activity during the six months ended June 30, 2022:

	Number of Shares	Weighted-Average Grant Date Fair Value
Outstanding, unvested at December 31, 2021	708,800	$ 5.29
Issued	350,173	$ 5.46
Vested	(353,300)	$ 5.29
Canceled/Forfeited	(77,810)	$ 5.32
Outstanding, unvested at June 30, 2022	627,863	$ 5.38

Stock-Based Compensation Expense

Total stock-based compensation for all awards granted to employees, consultants and our 2018 Employee Stock Purchase Plan ("ESPP"), before taxes, is as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Research and development expenses	$ 1,723	$ 1,864	$ 3,468	$ 3,345
General and administrative expenses	1,631	869	3,017	1,589
Total	$ 3,354	$ 2,733	$ 6,485	$ 4,934

11. Net Loss Per Common Share

Basic net loss per share is calculated by dividing the net loss by the weighted-average number of shares of common stock outstanding during the period, without consideration for common stock equivalents.

The following table sets forth the computation of the basic and diluted net income (loss) per share (in thousands, except for share and per share amounts):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Numerator:				
Net loss	$ (29,515)	$ (25,118)	$ (58,431)	$ (17,195)
Denominator:				
Weighted-average common shares outstanding, basic and diluted	86,448,632	76,749,641	86,363,116	76,368,506
Net loss per share, basic and diluted	$ (0.34)	$ (0.33)	$ (0.68)	$ (0.23)

In December 2020, the Company issued and sold Warrants to purchase 27,480,719 shares of common stock at a nominal exercise price of $0.01 per share (see Note 9). The shares of common stock into which the Warrants may be exercised are considered outstanding for the purposes of computing earnings per share, because the shares may be issued for little or no consideration, they are fully vested and the Warrants are immediately exercisable upon their issuance date.

During a period of net loss, basic net loss per share is the same as diluted net loss per share, as the inclusion of all potential common shares outstanding would have been anti-dilutive. Potentially dilutive securities that were not included in the diluted per share calculations because they would be anti-dilutive were as follows:

	June 30,	
	2022	2021
Options issued and outstanding and ESPP shares issuable and outstanding	7,200,540	5,429,410
Restricted stock subject to future vesting	627,863	—
Total	7,828,403	5,429,410

12. Subsequent Events

In July 2022, the Company entered into a loan and security agreement (the “Loan Agreement”) with Hercules Capital, Inc. (“Hercules”) and Silicon Valley Bank ("SVB"), which provides the Company up to $80.0 million in borrowing capacity across five potential tranches. The initial amount of $20.0 million from the first tranche was funded at the closing of the Loan Agreement, and an additional $10.0 million from the first tranche will be available at the Company’s election through March 2023. The remaining tranches will become available upon the Company meeting certain milestones set forth in the Loan Agreement. Borrowings under the Loan Agreement bear interest (i) at an annual cash rate equal to the greater of (x) the lesser of (1) the prime rate (as customarily defined) and (2) 5.50%, in either case, plus 3.15%, and (y) 7.15% and (ii) at an annual payment-in-kind rate which may equal 2.00%. At the Company’s option, the Company may prepay all or any portion of the outstanding borrowings, plus accrued and unpaid interest thereon and fees and expenses, subject to a prepayment premium ranging from 1.0% to 2.5%, during the first three years after closing, depending on the year of such prepayment. In addition, the Company paid a $150,000 facility charge upon closing, and shall pay a facility charge equal to 0.50% of the principal amount of any borrowings made pursuant to the amounts under the last four tranches. The Loan Agreement also provides for an end of term charge equal to 5.75% of the aggregate original principal amount of the loans so prepaid or repaid, as applicable. The term loan is secured by substantially all of the Company’ assets, other than intellectual property. Beginning on April 1, 2023, so long as the Company’s market capitalization is equal to or less than $400,000,000, the Company is subject to a minimum liquidity requirement equal to the then outstanding balance under the Loan Agreement multiplied by 0.55 or 0.45, which multiplier depends on whether the Company achieves certain performance milestones.

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

You should read the following discussion and analysis of our financial condition and results of operations together with the condensed consolidated financial statements and notes thereto included elsewhere in this report, and our audited financial statements and related notes thereto included as part of our Annual Report on Form 10-K for the year ended December 31, 2021. This discussion and analysis, and other parts of this report, contain forward-looking statements, including, but not limited to, statements related to the potential of Gritstone's programs. Such forward-looking statements involve substantial risks and uncertainties that could cause the outcome of Gritstone's programs, future results, performance or achievements to differ significantly from those expressed or implied by the forward-looking statements, including interim results obtained may differ from those at completion of the studies and clinical trials. Such risks and uncertainties include, among others, the uncertainties inherent in the drug development process, including Gritstone's programs' clinical development, the process of designing and conducting preclinical and clinical trials, the regulatory approval processes, the timing of regulatory filings, the challenges associated with manufacturing drug products, Gritstone's ability to successfully establish, protect and defend its intellectual property and other matters that could affect the sufficiency of existing cash to fund Gritstone's operations. Our actual results could differ materially from those discussed in these forward-looking statements. For a further description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to our business in general, see the section titled "Risk Factors". These forward-looking statements speak only as of the date hereof. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason.

Overview

We discover, develop, manufacture, and deliver next generation cancer and infectious disease vaccine candidates with the aim of improving patient outcomes and eliminating disease. The immune system sits at the nexus of many diseases, and manipulation of the immune system has enormous potential to drive transformational therapeutic and preventative benefits. Our approach seeks to generate a potent therapeutic or protective immune response by leveraging insights into the immune system's ability to recognize and destroy diseased cells and eliminate virally-infected cells. Our programs are built on two key platforms, the first being our proprietary Gritstone EDGE™ artificial intelligence platform, which enables us to identify antigens that can be recognized by the immune system on tumors or virally-infected cells with a high degree of accuracy. The second platform is our potent, flexible, vaccine platform, which we have engineered to deliver immunogens to the immune system to drive the destruction of tumors or virally-infected cells. Our vaccine platform leverages our two proprietary vaccine vectors, self-amplifying mRNA (samRNA) and chimpanzee adenovirus (ChAd). We utilize these "mix and match" vectors in a variety of ways, including as a heterologous prime-boost (one vector followed by the other) or homologous prime-boost (use the same vector twice). Our proprietary and synergistic technologies enable us to build robust and distinct pipelines in oncology and infectious disease. Additionally, our in-house manufacturing capabilities enable us to drive down cost and production time, as well as maintain control over intellectual property and product quality of our products.

Self-amplifying mRNA (samRNA)

Our samRNA vector is based on a synthetic RNA molecule derived from a wild-type Venezuelan Equine Encephalitis Virus (VEEV) replicon with the goal of extending the duration and magnitude of immunogen expression to drive potent and durable immune responses. The samRNA is delivered in a lipid nanoparticle (LNP) formulation. Like traditional mRNA vaccines, samRNA vaccines use the host cell's transcription system to produce target antigens to stimulate adaptive immunity. Unlike traditional mRNA, samRNA has an inherent ability to replicate by creating copies of the original strand of RNA once it is in the cell. Potential benefits of samRNA may include extended duration and magnitude of antigen expression, strong and durable induction of neutralizing antibody and T cell immunity (CD4+ and CD8+), dose sparing, and a refrigerator stable product.

The samRNA platform is a key asset for Gritstone. Within our oncology programs, we have presented clinical data supporting the identification and selection of an optimal dosing regimen for our novel samRNA vector against solid tumors. We also leverage our samRNA platform for infectious diseases, and our preclinical and clinical studies to date demonstrate the potential overall potency and dose sparing opportunity of samRNA in viral diseases.

The success of first-generation mRNA vaccines for SARS-CoV-2 (Comirnaty® and Spikevax) has validated mRNA as a vaccine technology, and we believe the samRNA vector has the potential to offer key benefits over mRNA, including dose sparing and more potent CD8+ T cell induction, within both oncology and viral diseases.

Chimpanzee Adenovirus (ChAd)

Chimpanzee Adenoviral (ChAd) vectors have been utilized in clinical studies in infectious disease and oncology over the last 20 years, and have been demonstrated to be well tolerated and effective at generating rapid and substantial CD4+ and CD8+ T cell responses. Additionally, ChAd vectors can induce B cell immune responses, i.e., elicit nAbs.

In-house Manufacturing

We manufacture our products at our own fully-integrated current good manufacturing practice (cGMP) biomanufacturing facilities. Our ability to control the manufacturing of high-quality tumor-specific immunotherapy and infectious disease vaccine candidates, and scale production, if early data are positive, is critical for efficient clinical development of our vaccine candidates and commercialization.

Our manufacturing know-how also contributes to our translational science and optimization of our production candidates. Through our work, we gain insights from "bench to manufacturing to bedside" and back. We translate such insights across functions and systems to optimize antigen cassette design, dose and vaccine regimen to induce differentiated immune response.

Clinical Programs

The table below summarizes key information about our ongoing clinical trials.

Program	Phase	Status	Indication(s)	Collaborator	Commercial Rights
GRANITE	1/2	Enrollment Complete; Treatment Ongoing	Early stage & advanced solid tumors	NA	Gritstone
GRANITE	2/3	Enrolling; Treatment Ongoing	MSS-CRC* first line maintenance	NA	Gritstone
GRANITE	2	Enrolling	MSS-colon cancer adjuvant	NA	Gritstone
SLATE	1/2	Complete	p53, KRAS Advanced Solid Tumors	NA	Gritstone
SLATE	2	Enrolling	$KRAS^{mut}$	NA	Gritstone
CORAL	1	Enrolling	COVID-19 naïve & booster	NIAID, IDCRC	Gritstone
CORAL	1	Enrolling	COVID-19 booster	NA	Gritstone
CORAL	1	Withdrawn	COVID-19 immunocompromised**	NA	Gritstone
CORAL	1	Enrolling	COVID-19 in South Africa (naïve, convalescent, HIV+)	CEPI	Gritstone
HIV	1	4Q 2021 IND Cleared	HIV treatment/cure	Gilead Sciences	Gilead***

* MSS-CRC = microsatellite stable colorectal cancer
** Due to reallocation of resources, this clinical trial has been withdrawn
*** Gilead is responsible for conducting a Phase 1 study

Oncology Program Updates

We are developing a portfolio of vaccine-based cancer immunotherapy product candidates using a heterologous prime (ChAd)/boost (samRNA) approach aimed at the highly targeted activation of tumor-specific neoantigens (TSNA) in solid tumors. Our two clinical-stage programs (GRANITE, which is "individualized" and SLATE, which is "off-the-shelf") aim to induce a substantial neoantigen-specific CD8+ T cell response using neoantigen-containing immunotherapies. Our product candidates within these programs are designed such that oncologists will not have to alter their treatment practices, thus enabling their use into broader patient populations. GRANITE patients receive a product candidate made specifically for them, based upon their tumor DNA/RNA sequence. In contrast, SLATE patients receive an off-the-shelf product candidate made for common driver mutations present in the patient's tumor as well as the patient having a HLA allele that can present the common driver mutation.

GRANITE Individualized Vaccine Program for Solid Tumors

Our first oncology program, GRANITE, consists of individualized neoantigen-based immunotherapy candidates for solid tumors. GRANITE was granted Fast Track designation by the FDA for the treatment of microsatellite stable colorectal cancer (MSS-CRC).

In an ongoing Phase 1/2 study, the individualized immunotherapy candidate, which was evaluated in combination with checkpoint inhibitors for patients with MSS-CRC who have been treated with FOLFOX/FOLFIRI therapy and in patients with gastro-esophageal (GEA) cancer who have been treated with platinum-based chemotherapy, has shown to be generally well-tolerated and showed no dose limiting toxicities, consistent and potent immunogenicity (CD8+ neoantigen-specific T cell induction in all subjects), in addition to tumor lesion size reductions and molecular responses as measured by reduction in circulating tumor DNA (cDNA). Initial results from this study were presented during the European Society of Medical Oncology (ESMO) Congress in September 2021, and follow-up for patients in the study continues. 4 of 9 treated patients with MSS-CRC had a molecular response (as reported during the ESMO 2021 data presentation) and, as reported on May 31, 2022, the observed median overall survival in this group exceeded 18 months with median OS not yet reached, versus 7.8 months in those who did not have a molecular response. All patients with MSS-CRC assessed for molecular response and alive at the time of the ESMO 2021 data presentation remained alive after an additional 35 weeks of follow-up. We believe these data demonstrate a correlation between a decrease in ctDNA and improved overall survival.

Based on the signals of activity observed in the GRANITE Phase 1/2 study, especially in MSS-CRC, we subsequently launched two new studies. The first study (GRANITE-CRC-1L, NCT05141721), which has registrational intent and has been discussed with the FDA, is a randomized Phase 2/3 study evaluating GRANITE as a maintenance treatment in patients with newly diagnosed, metastatic MSS-CRC who have completed FOLFOX-bevacizumab induction therapy. In support of this study, we entered into a clinical trial collaboration and supply agreement with F. Hoffman-La Roche Ltd to evaluate the safety and tolerability of GRANITE in combination with TECENTRIQ (atezolizumab). The second study is a randomized Phase 2 trial evaluating GRANITE in the adjuvant setting (GRANITE-ADJUVANT) in patients with stage II/III colon cancer who have minimal residual disease based on the detection of circulating tumor DNA (ctDNA) after definitive surgery. Enrollment in both of these studies is ongoing (GRANITE-CRC-1L and GRANITE-ADJUVANT). In July 2022, the first patient was treated in the GRANITE-CRC-1L trial. Initial data from GRANITE-CRC-1L are expected in the second half of 2023.

SLATE "Off the shelf" Vaccine Program for Solid Tumors

Our second oncology program, SLATE, consists of "off-the-shelf", TSNA-directed immunotherapy product candidates. SLATE contains a fixed cassette with TSNA that are shared across a subset of cancer patients rather than a cassette unique to an individual patient, which distinguishes it as a potential off-the-shelf alternative candidate to GRANITE. Our long-term vision for the SLATE program is to develop a suite of novel vaccine candidates that target common tumor antigens in order to both broaden addressable patient population and also drive multiple antigens per patient.

The first version of SLATE (SLATE v1) was studied in a Phase 1/2 study, in collaboration with Bristol-Myers Squibb, in 26 patients with metastatic solid tumors, most of whom had KRAS-mutant tumors largely focused on non-small cell lung cancer (NSCLC), MSS-CRC, and pancreatic ductal adenocarcinoma. In this initial study, which was focused on KRAS and p53 mutations, SLATE v1 demonstrated induction of CD8+ T cells against multiple KRAS driver mutations, and greatest activity was seen in a subset of NSCLC patients with the KRASmut G12C mutations. Although these initial outcomes were very promising, we believed we could further optimize the SLATE candidate to maximize potential clinical benefit.

Subsequently, we developed a next-generation, optimized SLATE candidate, SLATE-KRAS, (formerly referred to as SLATE v2) that exclusively includes epitopes from mutated KRAS and exhibited immunogenic superiority over v1 in human HLA-transgenic mice. SLATE-KRAS is now in Phase 2 testing (under the same IND as SLATE v1) in patients with advanced NSCLC and CRC. In an oral presentation at the 2022 AACR Annual Meeting, we presented early signals from the ongoing Phase 2 study which support the potential of SLATE-KRAS to drive stronger CD8+ T cell responses to mutant KRAS than our original candidate, SLATE v1 (Presentation title: "*Optimization of shared neoantigen vaccine design to increase vaccine potency: From bench to bedside and back*").

We expect to release additional data from this study in the third quarter of 2022.

Infectious Disease Program Updates

In early 2021, we expanded our programs to include infectious diseases. Our infectious disease programs aim to deliver vaccine candidates that drive both B cell and T cell immunity with the potential to provide either a protective or therapeutic effect across a broad array of viral diseases. This approach has demonstrated the ability to generate robust CD8+ T cells and neutralizing antibodies against SARS-CoV-2 in multiple preclinical and clinical studies and is being evaluated against multiple other pathogens in Gritstone-owned and partnered studies.

CORAL – Second Generation COVID-19 Vaccine Program

Our CORAL program is a second-generation SARS-CoV-2 vaccine platform delivering spike and additional SARS-CoV-2 T cell epitopes. We believe this approach of inducing both neutralizing antibodies and T cell responses could offer the potential for more durable protection and broader immunity against SARS-CoV-2 variants than that provided by first-generation SARS-CoV-2 vaccines, and serve as a basis for developing a pan-coronavirus vaccine. Within our CORAL program, we developed an optimized samRNA vaccine candidate that we believe is differentiated from first-generation mRNA vaccines. The program is supported by key relationships with the Gates Foundation, the National Institute of Allergy and Infectious Disease (NIAID), the Coalition for Epidemic Preparedness Innovations (CEPI), and through a license agreement with the La Jolla Institute for Immunology (LJI).

We have conducted preclinical studies demonstrating that our SARS-CoV-2 vaccine candidate induced significant and sustained levels of neutralizing antibodies and T cells against the Spike protein, plus a broad T cell response against epitopes from multiple viral genes outside of Spike. Results from one of these studies, a non-human primate challenge study (NHP Challenge Study), were published in Nature Communications in June 2022.

We are currently evaluating four distinct SARS-CoV-2 product candidates across three different Phase 1 clinical trials containing Spike plus additional non-Spike T cell epitope (TCE) sequences (and also full-length nucleocapsid). These studies include homologous and heterologous prime-boost regimens. All of these studies are ongoing and data from all are expected in the second half of 2022. Due to reprioritization of resources, we have withdrawn the CORAL-IMMUNOCOMPROMISED trial.

In January 2022, we shared data from the first cohort of our Phase 1 CORAL-BOOST study which showed our samRNA vaccine candidate induced robust neutralizing antibody titers and elicited broad T cell responses when administered at 10ug following two-dose administration of Vaxzervria. The neutralizing antibody titer levels against SARS-CoV-2 Spike protein shared at this time were consistent with published data from higher doses of first-generation mRNA vaccines in a similar clinical context.

In August 2022, we reported 6-month follow-up data from a subset of patients within the first two cohorts of the CORAL-BOOST study who elected to receive only a single 10µg or 30µg samRNA boost vaccination (n=7). The data demonstrated the neutralizing antibody levels reported in January 2022 persisted after 6 months, and durable neutralizing antibodies against wild type Spike as well as key Spike variants of concern (Beta, Delta and Omicron) were observed. Additionally, T cell responses to Spike and non-Spike T cell epitopes (TCEs) remained generally stable over the 6-month observation period.

HIV Vaccine Collaboration with Gilead Sciences

In January 2021, we entered into a collaboration, option and license agreement with Gilead Sciences, Inc. (Gilead) to research and develop a vaccine-based immunotherapy for HIV. Together, we plan to develop an HIV-specific therapeutic vaccine using our proprietary prime-boost vaccine platform, comprised of samRNA and adenoviral vectors, with antigens developed by Gilead. The collaboration and the program are progressing well, and Gritstone and Gilead received IND clearance for this program in December 2021. If Gilead decides to progress development beyond the initial Phase 1 study by exercising their exclusive option, the Company will receive a $40.0 million non-refundable option exercise fee.

Preclinical Research

Beyond GRANITE, SLATE, CORAL and the collaboration with Gilead, we continue to apply our broad set of capabilities in oncology and infectious diseases through promising preclinical work and partnerships. These projects

include a pan-coronavirus program and a program aiming to develop an optimal immunogen in the context of human papillomavirus (HPV) which is supported by the Gates Foundation.

COVID-19 Update

The COVID-19 pandemic has placed strains on the providers of healthcare services, including the healthcare institutions where we conduct our clinical trials. These strains have resulted in institutions prohibiting the initiation of new clinical trials, slowing or halting enrollment in existing trials and restricting the on-site monitoring of clinical trials. Our operations have not been materially impacted by the COVID-19 pandemic. However, we have experienced slowing of patient recruitment and sample collection in our ongoing clinical trials. Additionally, as a result of the COVID-19 pandemic, competition for potential patients in our trials may be further exaggerated as a result of multiple clinical site closures. To date, the COVID-19 pandemic has not materially affected our supply chain or production schedule, but further escalation of the health crisis has the potential to cause delays in our supply chain and manufacturing operations, which could materially adversely impact our business.

We have not experienced any material disruptions in our supply chain necessary to conduct our ongoing clinical trials. In response to the COVID-19 pandemic, we have implemented heightened health and safety measures designed to comply with applicable federal, state and local guidelines. In particular, we transitioned to a flexible work environment, allowing employees who can work from home effectively to do so. We are further supporting all of our employees by leveraging virtual meeting and messaging technology and by encouraging employees to follow local health authority guidance. As the pandemic continues to evolve, we may need to undertake additional actions that could impact our operations if required by applicable laws or regulations or if we determine such actions to be in the best interests of our employees.

Components of Our Operating Results

Collaboration and Grant Revenue

To date, we have not generated any revenue from product sales, and we do not expect to generate any revenue from product sales for the foreseeable future. We recognized $5.5 million and $12.7 million for the three and six months ended June 30, 2022, respectively, of revenue from the 2seventy Agreement, the Gilead Collaboration Agreement, and the grant agreements with CEPI and the Gates Foundation. We recognized $2.8 million and $42.5 million for the three and six months ended June 30, 2021, respectively, of revenue from the 2seventy Agreement, the Gilead Collaboration Agreement, and another small collaboration agreement. See Note 8 to our condensed consolidated financial statements for additional information.

In the future, we expect to continue to recognize revenue from the 2seventy Agreement and the Gilead Collaboration Agreement and may generate revenue from product sales or other collaboration agreements, strategic alliances and licensing arrangements. We expect our revenue to fluctuate on a quarterly and annual basis due to the timing and amount of license fees, reimbursement of costs incurred, milestone and other payments, as well as product sales, to the extent that any are successfully commercialized. If we fail to complete the development of our product candidates in a timely manner or obtain regulatory approval for them, our ability to generate future revenue, and our results of operations and financial position, would be materially adversely affected.

Operating Expenses

Research and Development Expenses

Since our inception, we have focused significant resources on our research and development activities, including conducting preclinical studies, manufacturing development efforts and related development activities for our product candidates.

Research and development activities account for a significant portion of our operating expenses. Research and development costs are expensed as incurred. These costs include:

- External research and development expenses, including:
- expenses incurred under arrangements with third parties, including clinical research organizations, or CROs, preclinical testing organizations, CMOs, academic and non-profit institutions and consultants;
- fees related to our license agreements;
- Internal research and development expenses, including (i) headcount-related expenses, such as salaries, payroll taxes, benefits, non-cash stock-based compensation and travel, for employees contributing to research and (ii) development activities, including the costs associated with the development of our EDGE™ platform; and
- Other expenses, which include direct and allocated expenses for laboratories, facilities and other costs.

Pursuant to our Arbutus License Agreement, Arbutus granted us a worldwide, exclusive license to certain technology of Arbutus, including Arbutus' portfolio of proprietary and clinically-validated LNP products and associated intellectual property, as well as technology transfer of Arbutus' manufacturing know-how. During the six months ended June 30, 2022 and 2021, we had no research and development expense under the agreement.

Pursuant to our 2020 Genevant License Agreement, Genevant granted us exclusive license rights under certain intellectual property related to Genevant's LNP technology for a single indication, and we agreed to pay Genevant an initial payment of $2.0 million, and up to an aggregate of $71.0 million in specified development, regulatory, and commercial milestones, and low to mid-single digit royalties on net sales of licensed products. The upfront payment of $2.0 million was included in research and development expenses during 2020. In March 2022, a milestone in the amount of $1.0 million was met, which was included in research and development expense for the six months ended June 30, 2022.

Pursuant to our 2021 Genevant License Agreement, we obtained a nonexclusive license to Genevant's LNP technology to develop and commercialize self-amplifying RNA, or samRNA, vaccines against SARS-CoV-2, the virus that causes COVID-19. Under the 2021 Genevant License Agreement, we made a $1.5 million upfront payment to Genevant, and Genevant is eligible to receive from us up to $141.0 million in contingent milestone payments per product, plus certain royalties on future product sales or licensing (or, in certain scenarios and subject to certain conditions, in lieu of these milestones and royalties Genevant would receive a percentage of amounts we receive from sublicenses). In March 2021, a milestone was met following the initial patient treatment in the Phase 1 clinical trial conducted through the NIAID-supported IDCRC. Both the $1.5 million upfront and $1.0 million milestone payments were recorded as research and development expense for the six months ended June 30, 2021. No research and development expense was recorded for the six months ended June 30, 2022.

We expect our research and development expenses to increase substantially in the future as we continue to advance our product candidates into and through clinical studies and pursue regulatory approval. Conducting the necessary clinical studies to obtain regulatory approval is costly and time-consuming, and such clinical studies generally become larger and more costly to conduct as they advance into later stages. The successful development of our product candidates is highly uncertain. The actual probability of success for our product candidates may be affected by a variety of risks and uncertainties associated with drug development, including those set forth in the section entitled "Risk Factors" included in Part II, Section 1A and elsewhere in this report.

The following table summarizes our research and development expenses by program and category (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
GRANITE program external expenses	$ 3,446	$ 2,816	$ 6,144	$ 5,380
SLATE program external expenses	676	810	1,472	1,912
CORAL program external expenses	3,196	904	6,200	1,634
Other program external research and development expenses	5,536	5,322	12,239	13,537
Personnel-related expenses [(1)]	10,371	8,512	20,958	16,547
Other unallocated research and development expenses	4,122	3,708	8,533	7,918
Total research and development expenses	$ 27,347	$ 22,072	$ 55,546	$ 46,928

(1) Personnel-related expenses include stock-based compensation expense of $1.7 million and $3.5 million, respectively, for the three and six months ended June 30, 2022, and $1.9 million and $3.3 million, respectively, for the three and six months ended June 30, 2021.

Since our research and development employees and infrastructure resources are utilized across our development programs, we do not track internal related expenses on a program-by-program basis.

General and Administrative Expenses

Our general and administrative expenses consist primarily of salaries and related costs, including, but not limited to, payroll taxes, benefits, non-cash stock-based compensation and travel. Other general and administrative expenses include legal costs of pursuing patent protection of our intellectual property and professional service fees for auditing, tax and general legal services. We expect our general and administrative expenses to continue to increase in the future as we expand our operating activities and prepare for potential commercialization of our current and future product candidates, increase our headcount and support our operations as a public company, including increased expenses related to legal, accounting, regulatory and tax-related services associated with maintaining compliance with requirements of the Nasdaq Global Select Market and the SEC, directors and officers liability insurance premiums and investor relations activities. Allocated expenses consist of rent expenses related to our office and research and development facilities, depreciation and other allocated costs not otherwise included in research and development expenses.

Interest Income, Net

Interest income, net, consists primarily of interest income and investment income earned on our cash, cash equivalents and marketable securities.

Results of Operations

Comparison of the Three and Six Months Ended June 30, 2022 and 2021

The following table sets forth the significant components of our results of operations (in thousands):

	Three Months Ended June 30,		
	2022	2021	Change
Revenues:			
Collaboration and license revenues	$ 2,761	$ 2,843	$ (82)
Grant revenues	2,710	—	2,710
Total revenues	5,471	2,843	2,628
Operating expenses:			
Research and development	27,347	22,072	5,275
General and administrative	7,792	5,937	1,855
Total operating expenses	35,139	28,009	7,130
Net loss from operations	(29,668)	(25,166)	(4,502)
Interest income, net	153	48	105
Net loss	$ (29,515)	$ (25,118)	$ (4,397)

	Six Months Ended June 30,		
	2022	2021	Change
Revenue:			
Collaboration and license revenues	$ 7,506	$ 42,536	$ (35,030)
Grant revenues	5,156	—	5,156
Total revenue	12,662	42,536	(29,874)
Operating expenses:			
Research and development	55,546	46,928	8,618
General and administrative	15,747	12,878	2,869
Total operating expenses	71,293	59,806	11,487
Net loss from operations	(58,631)	(17,270)	(41,361)
Interest income, net	200	75	125
Net loss	$ (58,431)	$ (17,195)	$ (41,236)

Collaboration and License and Grant Revenues

Collaboration and license revenues from our collaboration arrangements and grant revenues were $5.5 million and $12.7 million for the three and six months ended June 30, 2022, respectively. During the three months ended June 30, 2022, we recognized $2.3 million in collaboration revenue related to the 2seventy Agreement, $0.5 million in collaboration revenue related to the Gilead Collaboration Agreement, $2.4 million in grant revenue from the CEPI Funding Agreement, and $0.3 million in grant revenue from the Gates Foundation. During the six months ended June 30, 2022, we recognized $6.3 million in collaboration revenue related to the 2seventy Agreement, $1.2 million in collaboration revenue related to the Gilead Collaboration Agreement, $4.7 million in grant revenue from the CEPI Funding Agreement, and $0.5 million in grant revenue from the Gates Foundation. The amount of collaboration revenue recognized related to the 2seventy Agreement during the three and six months ended June 30, 2022 included a cumulative catch-up adjustment increasing contribution revenue by $2.0 million and $5.5 million, respectively, due to revisions to estimated costs to complete the remaining performance obligation.

Collaboration and license revenues from our collaboration arrangements and grant revenues were $2.8 million and $42.5 million for the three and six months ended June 30, 2021, respectively. During the three months ended June 30, 2021, we recorded $2.2 million in collaboration revenue related to the Gilead Collaboration Agreement and $0.7 million in collaboration revenue related to the 2seventy Agreement. During the six months ended June 30, 2021, we recorded $38.6 million in license revenue and $2.5 million in collaboration revenue related to the Gilead Collaboration Agreement and $1.4 million in collaboration revenue related to the 2seventy Agreement.

See Note 8 to our condensed consolidated financial statements for additional information.

Research and Development Expenses

Research and development expenses were $27.3 million and $55.5 million for the three and six months ended June 30, 2022, respectively, and $22.1 million and $46.9 million for the three and six months ended June 30, 2021, respectively.

The increase of $5.3 million for the three months ended June 30, 2022 compared to the three months ended June 30, 2021 was primarily due to increases of $1.9 million in personnel-related expenses, $3.1 million in outside services, consisting primarily of clinical trial and other chemistry, manufacturing and controls ("CMC") related expenses, and $0.8 million in facilities related costs, offset by a decrease of $0.5 million in laboratory supplies.

The increase of $8.6 million for the six months ended June 30, 2022 compared to the six months ended June 30, 2021 was primarily due to increases of $4.8 million in personnel-related expenses, $6.1 million in outside services, consisting primarily of clinical trial and other CMC related expenses, and $1.0 million in facilities related costs, offset by decreases of $1.5 million in laboratory supplies and $1.8 million in milestone and license payments.

General and Administrative Expenses

General and administrative expenses were $7.8 million for the three months ended June 30, 2022 compared to $5.9 million for the three months ended June 30, 2021. The increase of $1.9 million was primarily attributable to increases of $1.5 million in personnel-related expenses and $0.6 million in outside services, offset by a decrease of $0.2 million in facilities related costs.

General and administrative expenses were $15.7 million for the six months ended June 30, 2022 compared to $12.9 million for the six months ended June 30, 2021. The increase of $2.9 million was primarily attributable to increases of $3.0 million in personnel-related expenses, offset by a decrease of $0.1 million in facilities related costs.

Interest Income, Net

Interest income, net was $0.2 million and $0.2 million for the three and six months ended June 30, 2022, respectively. Interest income, net was immaterial and $0.1 million for the three and six months ended June 30, 2021, respectively. The income for both periods represent interest and investment income from cash, cash equivalents and marketable securities.

Liquidity and Capital Resources

Sources of Liquidity

Since our inception, we have funded our operations primarily through sales of our convertible preferred stock, sales of our common stock in public offerings and under our 2019 ATM Offering Program, private placements of our common stock and pre-funded warrants, and our collaborations, including with the receipt of proceeds under the 2seventy Agreement and the Gilead Collaboration Agreement, and non-dilutive grants from various nonprofit organizations. As of June 30, 2022, we had cash, cash equivalents, and marketable securities of $144.6 million and an accumulated deficit of $459.8 million, compared to cash, cash equivalents, and marketable securities of $206.3 million and an accumulated deficit of $401.4 million as of December 31, 2021. We expect that our cash, cash equivalents, and marketable securities as of June 30, 2022 will enable us to fund our current and planned operating expenses and capital expenditures for at least the next 12 months from the date of the filing of this report.

In October 2019, we filed the 2019 Shelf Registration Statement, covering the offering of up to $250.0 million of various equity and debt securities, including the sale and issuance of up to $75.0 million worth of shares of our common stock under the 2019 ATM Offering Program. Through June 30, 2022, we have received aggregate proceeds from our 2019 ATM Offering Program of $50.0 million, net of commissions and offering costs. We have $22.9 million available under our 2019 ATM Offering Program as of June 30, 2022.

In December 2020, we completed the First PIPE Financing, pursuant to which we sold (i) an aggregate of 5,543,351 shares of common stock at a per share purchase price of $3.34, (ii) pre-funded warrants to purchase an aggregate of 27,480,719 shares of common stock at a price per warrant share of $3.34 per share of common stock (of which $3.33 per share was pre-paid by each purchaser), and (iii) an aggregate of 4,043,127 shares of common stock at a per share purchase price of $3.71. In connection with the First PIPE Financing, we received $125.0 million in aggregate gross cash proceeds and incurred related costs of $5.7 million.

In September 2021, we completed the Second PIPE Financing, pursuant to which we sold an aggregate of 5,000,000 shares of common stock at a per share purchase price of $11.00. In connection with the SECOND PIPE Financing, we received $55.0 million in aggregate gross cash proceeds and incurred related costs of $2.3 million.

In February 2021, we received a non-refundable upfront payment of $30.0 million under the Gilead Collaboration Agreement and $30.0 million under the Gilead Stock Purchase Agreement.

In September 2021, we received an upfront payment of $11.3 million under the CEPI Funding Agreement.

In March 2022, we filed the 2022 Shelf Registration Statement, covering the offering of up to $250.0 million of various equity and debt securities, including the sale and issuance of up to $100.0 million worth of shares of our common stock under the 2022 ATM Offering Program. As of June 30, 2022, we have not received any proceeds from our 2022 ATM Offering Program and have $100.0 million available thereunder.

Future Funding Requirements

We do not expect positive cash flows from operations in the foreseeable future. Historically, we have incurred operating losses as a result of ongoing efforts to develop our cancer immunotherapy candidates, including conducting ongoing research and development, clinical and preclinical studies and providing general and administrative support for these operations. We do not have any products approved for sale, and we do not expect to generate any meaningful revenue unless and until we obtain regulatory approval of and commercialize any of our current and future product candidates and/or enter into additional significant collaboration or grant agreements with third parties, and we do not know when, or if, either will occur. We expect to continue to incur net operating losses for at least the next several years and we expect the losses to increase as we advance our CORAL, GRANITE, and SLATE programs, as well as any future product candidates, through clinical development, seek regulatory approval, prepare for and, if approved, proceed to commercialization, continue our research and development efforts and invest in our manufacturing facility. We are subject to all the risks typically related to the development of new product candidates, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. Moreover, we incur substantial costs associated with operating as a public company. We anticipate that we will need substantial additional funding in connection with our continuing operations.

Until we can generate a sufficient amount of revenue from the commercialization of immunotherapy product candidates or from additional significant collaboration or license agreements with third parties, if ever, we expect to finance our future cash needs through private and public equity offerings, including our ATM Offering Program, debt financings, and potential future collaboration, license and development agreements. Additional capital may not be available on reasonable terms, if at all. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of one or more of our current or future product candidates. If we raise additional funds by issuing equity or convertible debt securities, it could result in dilution to our existing stockholders and increased fixed payment obligations. In addition, as a condition to providing additional funds to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. If we incur indebtedness, we could become subject to covenants that would restrict our operations and potentially impair our competitiveness, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. Additionally, any future collaborations we enter into with third parties may provide capital in the near term, but we may have to relinquish valuable rights to our product candidates or grant licenses on terms that are not favorable to us. Any of the foregoing could significantly harm our business, financial condition and prospects.

Since our inception, we have incurred significant losses and negative cash flows from operations. We have an accumulated deficit of $459.8 million through June 30, 2022. We expect to incur substantial additional losses in the future as we conduct and expand our research and development activities. We believe that our existing cash, cash equivalents and marketable securities will be sufficient to enable us to fund our projected operations through at least the next twelve (12) months from the date of this report. We have based our projections of operating capital requirements on assumptions that may prove to be incorrect and we may use all our available capital resources sooner than we expect. Because of the numerous risks and uncertainties associated with research, development and

commercialization of product candidates, we are unable to estimate the exact amount of our operating capital requirements. Our future capital requirements depend on many factors, including:

- the scope, progress, results and costs of developing our product candidates, and of conducting preclinical studies and clinical trials, including our clinical trials for GRANITE, SLATE and CORAL;
- potential delays in our ongoing clinical trials as a result of the COVID-19 pandemic;
- the timing of, and the costs involved in, obtaining regulatory approvals for our oncology and infectious disease immunotherapy product candidates; in particular, any costs incurred in connection with any future regulatory requirements that may be imposed by the FDA or foreign regulatory bodies;
- the number and characteristics of any additional product candidates we develop or acquire;
- the timing and amount of any milestone, royalty or other payments we are required to make pursuant to any current or future collaboration or license agreements;
- the cost of manufacturing our product candidates we successfully commercialize, including the cost of scaling up our internal manufacturing operations;
- the cost of building a sales force in anticipation of product commercialization;
- the cost of commercialization activities, including building a commercial infrastructure, marketing, sales and distribution costs;
- our ability to maintain existing, and establish new, strategic collaborations, licensing or other arrangements and the financial terms of any such agreements, including the timing and amount of any future milestone, royalty or other payments due under any such agreement;
- any product liability or other lawsuits related to our products;
- the costs to attract, hire and retain skilled personnel;
- the costs associated with being a public company;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing our intellectual property portfolio; and
- the timing, receipt and amount of sales of any future approved products, if any.

A change in the outcome of any of these or other variables with respect to the development of any of our current and future product candidates could significantly change the costs and timing associated with the development of that product candidate. Furthermore, our operating plans may change in the future, and we will need additional funds to meet operational needs and capital requirements associated with such operating plans.

Cash Flows

The following table sets forth a summary of the primary sources and uses of cash for each of the periods presented below (in thousands):

	Six Months Ended June 30,	
	2022	2021
Cash used in operating activities	$ (59,788)	$ (12,028)
Cash provided by (used in) investing activities	30,113	(113,087)
Cash provided by (used in) financing activities	(607)	19,140
Net decrease in cash and cash equivalents	$ (30,282)	$ (105,975)

Cash Used in Operating Activities

During the six months ended June 30, 2022, cash used in operating activities was $59.8 million, which consisted of net loss of $58.4 million, adjusted by non-cash charges of $14.5 million and net changes in our operating assets and liabilities of $15.9 million. The non-cash charges consisted primarily of depreciation and amortization expense of $3.1 million, stock-based compensation of $6.5 million, non-cash operating lease expense of $4.6 million

and net amortization of premiums and discounts on marketable securities of $0.3 million. The change in our operating assets and liabilities was primarily due to decreases of $8.9 million in deferred revenue, $1.6 million in accrued compensation, $4.2 million in lease liability, $1.4 million in accounts payable, $0.1 million in prepaid expenses and other current assets, and $0.7 million in deposits and other long term assets, offset by increases of $0.3 million in accrued and other non-current liabilities, $0.7 million in accrued research and development expenses.

During the six months ended June 30, 2021, cash used in operating activities was $12.0 million, which consisted of net loss of $17.2 million, adjusted by non-cash charges of $12.3 million and net changes in our operating assets and liabilities of $7.1 million. The non-cash charges consisted primarily of depreciation and amortization expense of $3.2 million, stock-based compensation of $4.9 million, non-cash operating lease expense of $3.8 million and net amortization of premiums and discounts on marketable securities of $0.4 million. The change in our operating assets and liabilities was primarily due to decreases of $3.9 million in lease liability, $1.5 million in accrued compensation, $1.4 million in deferred revenue, $0.2 million in accrued and other non-current liabilities and increases of $1.2 million in prepaid expenses and other current assets and $0.2 million in deposits and other long-term assets, offset by increases $0.4 million in accounts payable and $0.9 million in accrued research and development.

Cash Provided by (Used in) Investing Activities

During the six months ended June 30, 2022, cash provided by investing activities was $30.1 million which consisted of $61.7 million in proceeds from the maturity of marketable securities, offset by $28.3 million in purchases of marketable securities and $3.3 million of capital expenditures to purchase property and equipment.

During the six months ended June 30, 2021, cash used in investing activities was $113.1 million, which consisted of $127.1 million in purchases of marketable securities and $2.7 million of capital expenditures to purchase property and equipment, offset by $16.0 million in proceeds from the maturity of marketable securities and $0.7 million from sales of marketable securities.

Cash Provided by (Used in) Financing Activities

During the six months ended June 30, 2022, cash used in financing activities was $0.6 million, which primarily consisted of $0.9 million in tax withholding on vesting of restricted stock units and $0.1 million in payment of financing costs, offset by $0.1 million in proceeds from the issuance of common stock from option and warrant exercises and $0.3 million in proceeds from issuance of common stock under the employee stock purchase plan.

During the six months ended June 30, 2021, cash provided by financing activities was $19.1 million, which primarily consisted of $21.2 million in proceeds from the issuance of common stock from public offering, $0.3 million in proceeds from the issuance of common stock under the employee stock purchase plan, $1.6 million in proceeds from the issuance of common stock through the ATM Offering Program and $2.0 million in proceeds from the exercise of stock options, offset by $6.0 million in financing and offering costs.

Off-Balance Sheet Arrangements

We have not entered into any off-balance sheet arrangements, as defined under SEC rules.

Contractual Obligations and Commitments

We lease office, laboratory and storage space in facilities at several locations in California and Massachusetts. The terms of our lease agreements have expiration dates between 2023 to 2033. The total future minimum lease payments under the agreements are $109.8 million, of which $5.4 million of the payments are due in the second half of 2022. See Note 6 to our condensed consolidated financial statements.

We are party to license agreements pursuant to which we have in-licensed various intellectual property rights. The license agreements obligate us to make certain milestone payments related to achievement of specified events, as well as royalties in the low-single digits based on sales of licensed products. During the six months ended June 30, 2022 and 2021, no royalties were due from the sales of licensed products. The table above does not include any milestone or royalty payments to the counterparties to these agreements as the amounts, timing and likelihood of such payments are not known. See Note 8 to our condensed consolidated financial statements for additional information.

In September 2017, we entered into a contract research and development agreement with a third party CRO to provide research, analysis and antibody samples to further the development of our antibody drug candidates. In June

2022, we notified the CRO of our intent to terminate the agreement effective in August 2022. During the three and six months ended June 30, 2022, we had no research and development expense under the agreement. During the three and six months ended June 30, 2021, we had immaterial research and development expense under the agreement. We are also obligated to pay the CRO certain milestone payments of up to $36.4 million on achievement of specified events. None of these events had occurred as of June 30, 2022. However, we are unable to estimate the timing or likelihood of achieving the milestones and, therefore, any related payments are not included in the table above.

In May 2019, we entered into a contract research and testing agreement with another third-party CRO to provide antibody discovery related services. In March 2022, we notified such CRO of our intent to terminate the agreement effective as of May 17, 2022. Under the agreement, we are obligated to pay such CRO certain milestone payments of up to $34.8 million on achievement of specified events. None of these events had occurred as of June 30, 2022. No research and development expense was recorded under the agreement during the three and six months ended June 30, 2022 and 2021.

From time to time, in the normal course of business, we enter into contracts with CROs for clinical trials, CMOs for clinical supply manufacturing and with vendors for preclinical research studies and other services and products for operating purposes, which generally provide for termination within 30 days of notice. Therefore, all such contracts are cancelable contracts and not included in the table above.

Critical Accounting Policies and Use of Estimates

This discussion and analysis of financial condition and results of operation is based on our unaudited condensed consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States, or U.S. GAAP. The preparation of financial statements requires management to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities as of the date of the financial statements and the reported amounts of expenses during the reporting period. On an ongoing basis, management evaluates its estimates, including those related to preclinical study trial accruals, fair value of assets and liabilities, and the fair value of common stock and stock-based compensation. Management bases its estimates on historical experience and on various other market-specific and relevant assumptions that management believes to be reasonable under the circumstances. Actual results could differ from those estimates.

There have been no changes to our critical accounting policies since we filed our Annual Report on Form 10-K for the year ended December 31, 2021 with the SEC on March 10, 2022. For a description of our critical accounting policies, please refer to our Annual Report on Form 10-K we filed with the SEC on March 10, 2022.

Recent Accounting Pronouncements

Refer to “Note 2. Summary of Significant Accounting Policies” in the notes to our unaudited interim condensed consolidated financial statements in Part I, Item 1 of this report, for a discussion of recent accounting pronouncements.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

There have been no material changes in market risk from the information provided in “Item 7A. Quantitative and Qualitative Disclosures About Market Risk” in our Annual Report on Form 10-K for the year ended December 31, 2021.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of June 30, 2022, our management, with the participation of our principal executive, financial and accounting officers, performed an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act. Our disclosure controls and

procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including the principal executive, financial and accounting officers, to allow timely decisions regarding required disclosures.

Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objective, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of June 30, 2022, the design and operation of our disclosure controls and procedures were effective at a reasonable assurance level.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(e) and 15d-15(e) of the Exchange Act that occurred during the six months ended June 30, 2022 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. Legal Proceedings

From time to time, we may become involved in litigation or other legal proceedings. We are not currently a party to any litigation or legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

ITEM 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this report, including our financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could have a material adverse effect on our business, results of operations, financial condition, prospects and stock price. In such an event, the market price of our common stock could decline, and you may lose all or part of your investment. Many of the following risks and uncertainties are, and will be, exacerbated by the COVID-19 pandemic and any worsening of the global business and economic environment as a result. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations.

There have been no material changes to the risk factors set forth in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2021 filed with the SEC on March 10, 2022, as updated by the risk factors set forth in Part II, Item 1A of our Quarterly Report on Form 10-Q for the three months ended March 31, 2022 filed with the SEC on May 5, 2022, except as set forth below.

Our failure to comply with the covenants or payment obligations under our existing term loan facility could result in an event of default, which may result in increased interest charges, acceleration of our repayment obligations or other actions by the lenders, any of which could negatively impact our business, financial condition and results of operations.

On July 19, 2022, we entered into a Loan and Security Agreement (the "Loan Agreement") with Hercules Capital, Inc., Silicon Valley Bank, and certain financial institutions or other entities from time to time party thereto (the "Lenders") pursuant to which the Lenders made available to us a secured term loan facility in an aggregate principal amount of up to $80 million (the "Term Loan"). We immediately drew $20.0 million under this facility upon entry into the Loan Agreement. In connection with the Loan Agreement, we granted the Lenders a security interest in substantially all of our personal property and other assets, other than our intellectual property. The Loan Agreement contains customary affirmative and restrictive covenants and representations and warranties, including a covenant against the occurrence of a change in control (as defined by the Loan Agreement), financial reporting obligations, and certain limitations on indebtedness, liens (including a negative pledge on intellectual property and other assets), investments, distributions (including dividends), collateral, investments, transfers, mergers or acquisitions, taxes, corporate changes, and deposit accounts. The Loan Agreement also includes customary events of default, including payment defaults, breaches of covenants following any applicable cure period, the occurrence of certain events that could reasonably be expected to have a material adverse effect (as set forth in the Loan Agreement), cross default to certain third-party indebtedness and certain events relating to bankruptcy or insolvency. Upon the occurrence of an event of default, a default interest rate of an additional 4.0% may be applied to the outstanding principal and interest payments due, and the Lenders may declare all outstanding obligations immediately due and payable and take such other actions as set forth in the Loan Agreement, including proceeding against the collateral securing such indebtedness. Such increased interest charges, accelerated repayment, proceedings against the collateral or other actions may have a negative impact on our business, financial condition and results of operations.

Our existing and any future indebtedness may limit our cash flow available to invest in the ongoing needs of our business.

Our outstanding debt combined with our other financial obligations and contractual commitments could have significant adverse consequences, including:

- requiring us to dedicate cash flow from operations or cash on hand to the payment of interest on, and principal of, our debt, which will reduce the amounts available to fund working capital, capital expenditures, product development efforts and other general corporate purposes;
- increasing our vulnerability to adverse changes in general economic, industry and market conditions;
- subjecting us to restrictive covenants that may reduce our ability to take certain corporate actions or obtain further debt or equity financing;
- limiting our flexibility in planning for, or reacting to, changes in our business and our industry; and
- placing us at a competitive disadvantage compared to our competitors that have less debt or better debt servicing options.

We intend to satisfy our current and future debt service obligations with our existing cash and funds from external sources. Nonetheless, we may not have sufficient funds or may be unable to arrange for additional financing to pay the amounts due under our existing or any future debt facility. Funds from external sources may not be available on acceptable terms, if at all. In addition, a failure to comply with the covenants under the Loan Agreement or any future loan agreements we may enter into could result in an event of default and acceleration of amounts due. If an event of default occurs and the lenders accelerate the amounts due under such loan agreements, we may not be able to make accelerated payments, and such lenders could seek to enforce security interests in the collateral securing such indebtedness.

We may seek orphan drug designation for certain future product candidates, but we may be unable to obtain such designations or to maintain the benefits associated with orphan drug designation, including market exclusivity, which may cause our revenue, if any, to be reduced.

We may pursue orphan drug designation for certain of our future product candidates. Under the Orphan Drug Act, the FDA may designate a drug or biologic product as an orphan drug if it is intended to treat a rare disease or condition, defined as a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States where there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the United States. In the European Union, the European Commission, on the basis of a scientific opinion by the EMA's Committee for Orphan Medicinal Products (COMP), grants orphan drug designation to promote the development of products that are intended for the diagnosis, prevention, or treatment of a life-threatening or chronically debilitating condition affecting not more than five in 10,000 persons in the European Union. Additionally, designation is granted for products intended for the diagnosis, prevention, or treatment of a life-threatening, seriously debilitating or serious and chronic condition when, without incentives, it is unlikely that sales of the drug in the European Union would be sufficient to justify the necessary investment in developing the drug or biological product. In any event, orphan designation is granted only if there is no satisfactory method of diagnosis, prevention, or treatment, or, if such a method exists, the medicine must be of significant benefit to those affected by the condition. It is no longer necessary to obtain orphan designation in Great Britain before an application for marketing authorization is made, and the criteria will be assessed by the MHRA at the time of assessment of the application for marketing authorization. The criteria in Great Britain are similar to those in the EU, but have been tailored for the GB market.

In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax credits for certain clinical trial costs, and application fee waivers. In addition, if an orphan-designated product receives the first FDA approval for the indication for which it has orphan designation (meaning that FDA has not previously approved a drug considered the same drug for same orphan condition), the product is entitled to orphan drug exclusivity. If there is a previously approved same drug for the same orphan condition, to obtain orphan exclusivity, the sponsor of the subsequent drug must demonstrate clinical superiority over the previously approved same drug. If granted, orphan exclusivity means the FDA may not approve any other application to market the same drug for the same disease or condition for a period of seven years, except in limited circumstances, such as a showing of clinical superiority over the product with orphan exclusivity or where the manufacturer is unable to assure sufficient product quantity to meet the needs of the orphan patient population. In the European Union, orphan drug designation entitles a party to financial incentives such as reduction of fees or fee waivers and ten years of market exclusivity following drug or biological product approval, subject to the positive outcome of the reassessment of the continued compliance with the orphan designation criteria at the time of approval. This period may be reduced to six years if the orphan drug designation criteria are no longer met at the end of the fifth

year since grant of the approval, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity. Moreover, upcoming legislative reforms in the European Union may result in a reduction of market exclusivity periods for orphan medicinal products and/or imposition of additional requirements for grant of such exclusivity. In Great Britain, if the criteria for orphan designation are met at the time of assessment of the marketing authorization, the applicant is entitled to a fee reduction and ten years of market exclusivity. The terms of market exclusivity, and possibility for the period to be reduced, are similar to those in the EU.

Even if we obtain orphan drug designation for a product candidate, we may not be the first to obtain marketing approval for the product candidate for any particular orphan indication due to the uncertainties associated with developing novel biologic products. Further, even if we obtain orphan drug exclusivity for a product candidate, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition. Even after an orphan drug is approved, the FDA or foreign regulatory authorities can subsequently approve the same drug with the same active moiety for the same condition if the FDA or foreign regulatory authorities concludes that the later drug is clinically superior in that it is safer, more effective, or makes a major contribution to patient care. Orphan drug designation neither shortens the development time or regulatory review time of a drug or biologic nor gives the drug or biologic any advantage in the regulatory review or approval process.

Moreover, a recent Eleventh Circuit decision in Catalyst Pharmaceuticals, Inc. vs. FDA regarding interpretation of the Orphan Drug Act exclusivity provisions as applied to drugs approved for orphan indications narrower than the drug's orphan designation has the potential to significantly broaden the scope of orphan drug exclusivity for such products. Depending on how broadly FDA applies the Catalyst decision, it could fundamentally change how companies rely on, or seek to work around, orphan drug exclusivity. Legislation has been introduced that may reverse the Catalyst decision, and may be enacted as part of the reauthorization of user fees later this year.

Enacted and future healthcare legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our product candidates and may affect the prices we may set.

In the United States, the European Union and other jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes and proposed changes to the healthcare system that could affect our future results of operations. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs and improve the quality of healthcare. For example, in March 2010, the ACA was enacted, which substantially changed the way healthcare is financed by both governmental and private payors. Among the provisions of the ACA, those of greatest importance to the pharmaceutical and biotechnology industries include the following:

- an annual, non-deductible fee payable by any entity that manufactures or imports certain branded prescription drugs and biologic agents (other than those designated as orphan drugs), which is apportioned among these entities according to their market share in certain government healthcare programs;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- a licensure framework for follow on biologic products;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research; and
- establishment of a Center for Medicare and Medicaid Innovation at the Centers for Medicare & Medicaid Services, or CMS, to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

Furthermore, the expansion of the 340B Drug Discount Program through the ACA has increased the number of purchasers who are eligible for significant discounts on branded drugs. Several drug manufacturers have commenced litigation, which remains ongoing, challenging the legality of contract pharmacy arrangements under the 340B Drug Discount Program, which may affect the way in which manufacturers are required to extend the 340B Drug Discount Program prices to covered entities, including through contract pharmacies. There are also ongoing

challenges regarding the implementation of the 340B Drug Discount Program Administrative Dispute Resolution Process, which is in part intended to resolve claims by covered entities that they have been overcharged for covered outpatient drugs by manufacturers. In addition, the Office of Management and Budget initiated review of a new proposed rule titled "340B Drug Pricing Program; Administrative Dispute Resolution" in November 2021. The nature of the current Administrative Dispute Resolution Process, and the outcomes of these court cases, may have a material adverse impact on our revenue should we participate in the 340B Drug Discount Program after receiving approval for our product candidates.

Since its enactment, there have been judicial, Congressional, and executive branch challenges to certain aspects of the ACA. On June 17, 2021, the U.S. Supreme Court dismissed the most recent judicial challenge to the ACA brought by several states without specifically ruling on the constitutionality of the ACA. Prior to the Supreme Court's decision, President Biden issued an executive order to initiate a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace during the ongoing COVID-19 pandemic. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is unclear how other healthcare reform measures of the Biden administration will impact our business.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. In August 2011, the Budget Control Act of 2011, among other things, led to aggregate reductions of Medicare payments to providers of 2% per fiscal year. These reductions went into effect in April 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through fiscal year 2031, with the exception of a temporary suspension from May 1, 2020 through March 31, 2022, unless additional action is taken by Congress. Under current legislation, the actual reduction in Medicare payments will vary from 1% in 2022 to up to 4% in the first six months of the final fiscal year of this sequester. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws or any other similar laws introduced in the future may result in additional reductions in Medicare and other health care funding, which could negatively affect our customers and accordingly, our financial operations. For example, Congress is currently considering a number of bills relating to drug pricing, including bills that would impose rebate obligations for Medicare (and potentially other utilization) for price increases greater than the rate of inflation, require drug pricing negotiations in Medicare, redesign the Part D benefit to lower patient costs and overall spending, and introduce enhanced transparency measures into drug pricing. In particular, the Build Back Better Act introduced drug pricing reforms that would, among other things, allow the federal government to negotiate prices for some high-cost drugs covered under Medicare Parts B and D, introduce inflationary rebates on certain Medicare Part B and Medicare Part D drugs to support limits on drug price increases in Medicare and private insurance, redesign the structure of the Part D benefit, and require payment of rebates on covered outpatient drugs that are paid for by a state Children's Health Insurance Program. Although the Build Back Better Act stalled in Congress, there are other drug pricing reforms still under consideration in the Congress, including elements of the Build Back Better Act aimed at allowing Medicare to negotiate the price of prescription drugs in the United States.

Moreover, payment methodologies may be subject to changes in healthcare legislation and regulatory initiatives. For example, CMS may develop new payment and delivery models, such as bundled payment models. In addition, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several U.S. Congressional inquiries, hearings and proposed and enacted federal legislation and rules, as well as Executive Orders, designed to, among other things, reduce or limit the prices of drugs and make them more affordable for patients, such as by tying the prices that Medicare reimburses for physician-administered drugs to the prices of drugs in other countries, reform the structure and financing of Medicare Part D pharmaceutical benefits, including through increasing manufacturer contributions to offset Medicare beneficiary costs, bring more transparency to drug pricing rationale and methodologies (including, for example, by requiring drug manufacturers to disclose planned drug price increases and the rationales for such increases), implement data collection and reporting under Section 204 of Title II of Division BB of the Consolidated Appropriations Act, 2021, which requires, among other things, health plans and issuers to disclose rebates, fees, and other remuneration provided by drug manufacturers related to certain pharmaceutical products, enable the government to negotiate prices for drugs covered under Medicare, including H.R. 3 which passed the House, revise rules associated with the

calculation of Medicaid Average Manufacturer Price and Best Price, including the removal of the current statutory 100% of Average Manufacturer Price per-unit cap on Medicaid rebate liability for single source and innovator multiple source drugs effective as of January 1, 2024 under the American Rescue Plan Act of 2021, which may significantly affect the amount of rebates paid on prescription drugs under Medicaid and the prices that are required to be charged to covered entities under the 340B Drug Discount Program, and facilitate the importation of certain lower-cost drugs from other countries. In July 2021, President Biden issued an Executive Order pertaining to drug pricing, which expressed support for legislation allowing direct negotiation in Medicare Part D and inflationary rebates, and directed various executive branch agencies to take actions to lower drug prices and promote generic competition, including directing FDA to support and work with states and Indian Tribes to develop importation plans to import prescription drugs from Canada. The Executive Order required the Secretary of Health and Human Services to develop a comprehensive plan for addressing drug prices. The plan was released on September 9, 2021, and it includes support for legislative and administrative actions that would improve affordability, access and competition, and foster scientific innovation. We expect that additional U.S. federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that the U.S. federal government will pay for healthcare products and services, which could result in reduced demand for our product candidates or additional pricing pressures.

Individual states in the United States have also increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, results of operations, financial condition and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for our product candidates or put pressure on our product pricing.

In the European Union and UK, similar political, economic and regulatory developments may affect our ability to profitably commercialize our product candidates, if approved. In addition to continuing pressure on prices and cost containment measures, legislative developments at the European Union or member state level may result in significant additional requirements or obstacles that may increase our operating costs. The delivery of healthcare in the European Union, including the establishment and operation of health services and the pricing and reimbursement of medicines, is almost exclusively a matter for national, rather than European Union, law and policy. National governments and health service providers have different priorities and approaches to the delivery of health care and the pricing and reimbursement of products in that context. In general, however, the healthcare budgetary constraints in most European Union member states have resulted in restrictions on the pricing and reimbursement of medicines by relevant health service providers. Coupled with ever-increasing European Union and national regulatory burdens on those wishing to develop and market products, this could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to commercialize our product candidates, if approved. In markets outside of the United States and European Union, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies. Moreover, upcoming legislative and policy changes in the European Union may further impact the price and reimbursement status of our products in the future.

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

Unregistered Sales of Equity Securities

Not applicable.

Use of Proceeds

Not applicable.

Issuer Purchases of Equity Securities

Not applicable.

ITEM 3. Defaults Upon Senior Securities

None.

ITEM 4. Mine Safety Disclosures

Not applicable.

ITEM 5. Other Information

None.

ITEM 6. EXHIBITS

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Date	Number	
3.1(a)	Amended and Restated Certificate of Incorporation.	8-K	10/02/2018	3.1	
3.1(b)	Certificate of Amendment to Amended and Restated Certificate of Incorporation.	8-K	05/06/2021	3.1	
3.2	Amended and Restated Bylaws.	8-K	05/06/2021	3.2	
4.1	Reference is made to exhibits 3.1 through 3.2.				
4.2	Form of Common Stock Certificate.	S-1/A	09/17/2018	4.2	
4.3	Description of Common Stock.	10-K	03/10/2022	4.3	
10.1	Fourth Amendment to the License Agreement between Gritstone bio, Inc. and MIL 21E, LLC, effective as of June 30, 2022				X
31.1	Certification of Chief Executive Officer of Gritstone bio, Inc., as required by Rule 13a-14(a) or Rule 15d-14(a) under the Securities Exchange Act of 1934, as amended.				X
31.2	Certification of Chief Financial Officer of Gritstone bio, Inc., as required by Rule 13a-14(a) or Rule 15d-14(a) under the Securities Exchange Act of 1934, as amended.				X
32.1*	Certification by the Chief Executive Officer and Chief Financial Officer, as required by Rule 13a-14(b) or Rule 15d-14(b) under the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 36 of Title 18 of the United States Code (18 U.S.C. §1350).				X
101.INS	Inline XBRL Instance Document				X
101.SCH	Inline XBRL Taxonomy Extension Schema Document				X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				X
104	The cover page from the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2022 has been formatted in Inline XBRL.				X

* The certification attached as Exhibit 32.1 that accompanies this report is not deemed filed with the SEC and is not to be incorporated by reference into any filing of Gritstone bio, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Form 10-Q, irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Gritstone bio, Inc.

Date: August 4, 2022

By: /s/ Andrew Allen
Andrew Allen, M.D., Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

By: /s/ Vassiliki “Celia” Economides
Vassiliki “Celia” Economides
Chief Financial Officer
(Principal Financial Officer)

Exhibit 10.1

Fourth Amendment to License Agreement

This Fourth Amendment to License Agreement ("**Fourth Amendment**") is dated June 6, 2022 ("**Effective Date**") and entered into by and between Gritstone bio, Inc., formerly known as Gritstone Oncology, Inc. ("**Licensee**") and MIL 21E, LLC ("**Licensor**").

WHEREAS, Licensor and Licensee are parties to a certain License Agreement dated September 6, 2018, as amended by that certain First Amendment to License Agreement dated July 11, 2019, as amended by that certain Second Amendment to License Agreement dated May 20, 2020, as amended by that certain Third Amendment to License Agreement dated September 21, 2021 (collectively, "**License Agreement**");

WHEREAS, Licensee warrants and represents that, to the best of its knowledge, Licensor has fulfilled its obligations under the License Agreement and is not in default of any covenants or obligations contained in the License Agreement;

WHEREAS, Licensor and Licensee desire to amend the License Agreement in certain respects as set forth herein; and,

WHEREAS, all capitalized terms contained herein shall, unless otherwise defined in this Fourth Amendment, have the same meaning as set forth in the License Agreement.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree that the License Agreement is hereby amended as follows:

1. Licensed Premises. Effective February 1, 2023 ("**Fourth Extended Term Commencement Date**"), Section 1(a) of the License Agreement is hereby amended by (i) deleting the existing Exhibit 1 in its entirety, and replacing it with Exhibit 1-A attached hereto, and (ii) deleting Section 1(a)(A) in its entirely and replacing it with the following:

   (A) a non-transferable, non-assignable license to, (i) use Lab J, more specifically identified in the blue-shaded portion of the floor plan attached to this Fourth Amendment as Exhibit 1-A ("**Lab Suite**"), and (ii) use Office J, more specifically identified in the blue-shaded portion of the floor plan attached to this Fourth Amendment as Exhibit 1-A ("**Office Suite**"),

2. Term. Section 2(a) of the Licensed Agreement is hereby modified by adding the following new sentences to the end of the Section:

   The Term of the Agreement as to the Licensed Premises defined pursuant to Section 1 of this Fourth Amendment shall be extended ("**Fourth Extended Term**"). The Fourth Extended Term shall commence the Fourth Extended Term Commencement Date and shall expire on June 30, 2023 ("**Expiration Date**"). For the avoidance of doubt, effective January 31, 2023, Licensee's License shall terminate as to Lab Suite D and Office Suite M, and Licensee shall surrender the same pursuant to all terms and conditions of the License Agreement ("**Released Space**").

3. License Fee. Section 3(a) of the License Agreement is hereby modified by adding the following new paragraph to the end of the Section:

Effective as of the Fourth Extended Term Commencement Date, Licensee shall pay Licensor a monthly license fee of $187,693.00 ("**Fourth Extended Term License Fee**"), as shown on Schedule A attached hereto. Except as expressly stated otherwise herein, the Fourth Extended Term License Fee shall be subject to all the same terms and conditions as the License Fee.

4. Occupants. Section 1(c) of the License Agreement is hereby modified by adding the following new sentence to the end of the Section:

Effective the Fourth Extended Term Commencement Date, Occupants shall be defined as forty one (41) of Licensee's members, employees or agents.

5. Security Deposit: The following shall be added to the end of Section 3(d) of the License Agreement:
Effective the Fourth Extended Term Commencement Date, Licensee shall remit a Security Deposit equal to $187,693.00 to Licensor ("**Fourth Extended Term Security Deposit**"). As Licensee has already paid Licensor a security deposit of $375,926.70 under the License Agreement ("**Previous Security Deposit**"), Licensor shall retain the Previous Security Deposit in the amount of the Fourth Extended Term Security Deposit and release the remainder pursuant to the terms of the License Agreement in relation to the Released Space.
6. Initial Payment. Section 3(e) of the License Agreement is hereby modified by adding the following new paragraph to the end of the Section:
Effective the Fourth Extended Term Commencement Date, Licensor shall hold an amount equal to $187,693.00 as the license fee for the last month of the Fourth Extended Term.

7. Parking. Section 6 of the License Agreement is hereby modified by adding the following new sentence to the end of the Section:

Effective the Fourth Extended Term Commencement Date, Licensee's Parking Spaces shall be defined as five (5) unreserved parking spaces.

8. Notice. The following shall be added to the end of Section 15(j) of the License Agreement:

A copy of any notice to Licensor pursuant to this License Agreement shall be sent to the following address:

SmartLabs

10 Fan Pier, 4th Floor

Boston, MA 02210

Attn: Legal Department

9. Broker. Licensee warrants and represents that Licensee has dealt with no broker in connection with the consummation of this Fourth Amendment, and, in the event of any brokerage claims asserted against Licensor predicated upon prior dealings with Licensee in relation to this Third Amendment, Licensee agrees to defend the same and indemnify Licensor against any such claim.

10. Ratification. Except as expressly amended hereby, all terms and conditions of the License Agreement shall remain unchanged and in full force and effect.

11. Counterparts. This Fourth Amendment to License Agreement may be executed in any number of counterparts, each of which shall be an original and all of which together shall constitute one and the same document.

IN WITNESS WHEREOF, Licensor and Licensee have duly executed this Fourth Amendment as of the Effective Date.

LICENSOR:	**LICENSEE:**
/s/ Brian Taylor	/s/ Andrew Allen
By: Brian Taylor	By: Andrew Allen
Title: Head of Field Operations	Title: President & CEO

SCHEDULE A

Start	End	License Fee
05/01/22	08/31/22	$296,145.26
09/01/22	01/31/23	$375,926.70
02/01/23	06/30/23	$187,693.00

Exhibit 1-A

Omitted pursuant to Regulation S-K, Item 601(a)(5)

Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Andrew Allen, M.D., Ph.D., certify that:

1. I have reviewed this quarterly report on Form 10-Q of Gritstone bio, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: August 4, 2022

By: /s/ Andrew Allen
Andrew Allen, M.D., Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Vassiliki Economides, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Gritstone bio, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: August 4, 2022

By: /s/ Vassiliki "Celia" Economides
Vassiliki "Celia" Economides
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

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

In connection with the Quarterly Report on Form 10-Q of Gritstone bio, Inc. (the "Company") for the period ended June 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Andrew Allen, M.D., Ph.D., President and Chief Executive Officer (Principal Executive Officer) of the Company, and Vassiliki Economides, Chief Financial Officer (Principal Financial Officer) of the Company, respectively, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

Date: August 4, 2022

/s/ Andrew Allen
Andrew Allen, M.D., Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

Date: August 4, 2022

/s/ Vassiliki "Celia" Economides
Vassiliki "Celia" Economides
Chief Financial Officer
(Principal Financial Officer)