UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended June 30, 2023

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: 001-40532

GRAPHITE BIO, INC.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**84-4867570**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
201 Haskins Way, Suite 210 South San Francisco, CA	**94080**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (650) 484-0886

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.00001 per share	GRPH	The Nasdaq Global 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 10, 2023, the registrant had 57,980,275 shares of common stock, $0.00001 par value per share, outstanding.

Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q (this "Form 10-Q"), including its section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations," contains express or implied forward-looking statements that are based on our management's belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by these forward-looking statements. Forward-looking statements in this Form 10-Q may include, but are not limited to, statements about:

- our plans and expectations regarding strategic alternatives that could significantly impact our future operations and financial position, and the timing and success of such process;
- the therapeutic potential of any product candidates, and the disease indications for which we intend to develop any product candidates;
- estimates of our expenses, ongoing losses, future revenue, capital requirements and our need for or ability to obtain additional funding before we can expect to generate any revenue from product sales;
- our ability to establish or maintain licenses, collaborations, partnerships or strategic relationships;
- our ability to create and maintain a pipeline of product candidates;
- our ability to advance any product candidate into, and successfully complete clinical trials;
- our ability to obtain and maintain intellectual property protection for our current and future product candidates, the duration of such protection and our ability to operate our business without infringing on the intellectual property rights of others;
- other implementation and effects of the restructuring initiative that we announced in February 2023 and any future restructuring plans that we may pursue;
- our expectations regarding use of our cash, cash equivalents and investments in marketable securities;
- our financial performance;
- our ability to retain and recruit key personnel;
- our competitive position and development of and projections relating to our competitors or our industry, including in gene editing and gene therapy;
- the impact of laws and regulations in the United States and foreign countries on various aspects of our operations, including our regulatory and clinical strategy; and
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act.

In some cases, forward-looking statements can be identified by terminology such as "will," "may," "should," "could," "expects," "intends," "plans," "aims," "anticipates," "believes," "estimates," "predicts," "potential," "continue," or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section entitled "Risk Factors" and elsewhere in this Form 10-Q. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those expressed or implied by the forward-looking statements. No forward-looking statement is a promise or a guarantee of future performance.

The forward-looking statements in this Form 10-Q represent our views as of the date of this Form 10-Q. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Form 10-Q.

This Form 10-Q may include statistical and other industry and market data that we obtained from industry publications and research, surveys, and studies conducted by third parties. Industry publications and third-party research, surveys, and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We have not independently verified the information contained in such sources.

We use various trademarks and trade names in our business, including without limitation our corporate name and logo. All other trademarks or trade names referred to in this Form 10-Q are the property of their respective owners. Solely for convenience, the trademarks and trade names in this Form 10-Q may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

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Graphite Bio, Inc.
Condensed Balance Sheets
(in thousands, except share and per share data)
(unaudited)

	June 30, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 128,506	$ 47,730
Investments in marketable securities, current	118,159	220,499
Assets held for sale	1,628	—
Prepaid expenses and other current assets	2,878	7,136
Total current assets	251,171	275,365
Restricted cash	1,716	1,716
Investments in marketable securities, non-current	—	15,322
Property and equipment, net	17,965	22,630
Operating lease right-of-use assets	15,837	5,580
Other assets	355	1,289
Total assets	$ 287,044	$ 321,902
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,720	$ 2,608
Accrued compensation	2,268	3,799
Accrued research costs	577	720
Accrued expenses and other current liabilities	3,791	1,871
Operating lease liabilities, current	2,914	4,045
Total current liabilities	12,270	13,043
Operating lease liabilities, non-current	50,628	1,749
Other long- term liabilities	—	10,819
Total liabilities	62,898	25,611
Commitments and contingencies (Note 7)		
Stockholders' equity:		
Preferred stock, $0.00001 par value, 10,000,000 shares authorized as of June 30, 2023 and December 31, 2022; and no shares issued and outstanding as of June 30, 2023 and December 31, 2022	—	—
Common stock, $0.00001 par value, 300,000,000 shares authorized as of June 30, 2023 and December 31, 2022; 57,989,273 and 58,221,760 shares issued and outstanding as of June 30, 2023 and December 31, 2022, respectively	1	1
Additional paid-in capital	546,067	539,741
Accumulated other comprehensive loss	(271)	(1,048)
Accumulated deficit	(321,651)	(242,403)
Total stockholders' equity	224,146	296,291
Total liabilities and stockholders' equity	$ 287,044	$ 321,902

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

Graphite Bio, Inc.
Condensed Statements of Operations and Comprehensive Loss
(in thousands, except share and per share data)
(unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Operating expenses:				
Research and development	$ 13,508	$ 17,777	$ 29,752	$ 36,023
General and administrative	7,455	8,999	15,078	16,711
Restructuring and impairment costs	37,196	—	39,779	—
Total operating expenses	58,159	26,776	84,609	52,734
Loss from operations	(58,159)	(26,776)	(84,609)	(52,734)
Other income (expense), net:				
Interest income, net	2,845	840	5,432	963
Loss on disposal of assets	—	—	(71)	—
Total other income, net	2,845	840	5,361	963
Net loss	$ (55,314)	$ (25,936)	$ (79,248)	$ (51,771)
Unrealized gain (loss) on investments in marketable securities	198	(724)	777	(1,033)
Comprehensive loss	$ (55,116)	$ (26,660)	$ (78,471)	$ (52,804)
Net loss per share attributable to common stockholders—basic and diluted	$ (0.97)	$ (0.48)	$ (1.40)	$ (0.95)
Weighted-average shares used in computing net loss per share—basic and diluted	56,745,347	54,572,866	56,499,160	54,284,836

The accompanying notes are an integral part of these unaudited condensed financial statements

Graphite Bio, Inc.
Condensed Statements of Stockholders' Equity
(in thousands, except share data)
(unaudited)

	Common Stock Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2022	58,221,760	$ 1	$ 539,741	$ (1,048)	$ (242,403)	$ 296,291
Vesting of early exercised shares	—	—	25	—	—	25
Repurchase of unvested early exercised shares	(26,942)	—	—	—	—	—
Stock-based compensation expense	—	—	3,263	—	—	3,263
Unrealized gain on investments in marketable securities	—	—	—	579	—	579
Net loss	—	—	—	—	(23,934)	(23,934)
Balance at March 31, 2023	58,194,818	$ 1	$ 543,029	$ (469)	$ (266,337)	$ 276,224
Common stock issued upon exercise of options	55,047	—	18	—	—	18
Common stock issued under ESPP	65,222	—	157	—	—	157
Vesting of early exercised shares	—	—	18	—	—	18
Repurchase of founders' shares	(152,694)	—	—	—	—	—
Repurchase of unvested early exercised shares	(173,120)	—	—	—	—	—
Stock-based compensation expense	—	—	2,845	—	—	2,845
Unrealized gain on investments in marketable securities	—	—	—	198	—	198
Net loss	—	—	—	—	(55,314)	(55,314)
Balance at June 30, 2023	57,989,273	$ 1	$ 546,067	$ (271)	$ (321,651)	$ 224,146

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

Graphite Bio, Inc.
Condensed Statements of Stockholders' Equity
(in thousands, except share data)
(unaudited)

	Common Stock Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2021	58,010,823	$ 1	$ 525,400	$ —	$ (141,351)	$ 384,050
Stock-based compensation expense	—	—	3,342	—	—	3,342
Vesting of early exercised shares	—	—	51	—	—	51
Unrealized loss on investments in marketable securities	—	—	—	(309)	—	(309)
Net loss	—	—	—	—	(25,835)	(25,835)
Balance at March 31, 2022	58,010,823	$ 1	$ 528,793	$ (309)	$ (167,186)	$ 361,299
Common stock issued upon exercise of options	43,945	—	13	—	—	13
Common stock issued under ESPP	207,137	—	414	—	—	414
Vesting of early exercised shares	—	—	30	—	—	30
Repurchase of unvested early exercised stock options	(50,713)	—	—	—	—	
Stock-based compensation expense	—	—	3,360	—	—	3,360
Unrealized loss on investments in marketable securities	—	—	—	(724)	—	(724)
Net loss	—	—	—	—	(25,936)	(25,936)
Balance at June 30, 2022	58,211,192	$ 1	$ 532,610	$ (1,033)	$ (193,122)	$ 338,456

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

Graphite Bio, Inc.
Condensed Statements of Cash Flows
(in thousands)
(unaudited)

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Cash flows from operating activities:		
Net loss	$ (79,248)	$ (51,771)
Adjustments to reconcile net loss to net cash used in operating activities:		
Net amortization of premiums and discounts on investments in marketable securities	(2,466)	83
Depreciation and amortization	1,503	1,018
Non-cash lease expense	2,815	2,938
Stock-based compensation expense	6,108	6,702
Loss on sale/ disposal of assets	71	—
Impairment of assets	36,061	—
Changes in assets and liabilities:		
Assets held for sale	(1,628)	—
Prepaid expenses and other current assets and other assets	7,109	527
Accounts payable	(1,089)	883
Accrued compensation	(1,531)	(508)
Accrued research costs	(143)	(173)
Accrued expenses and other current liabilities and other liabilities	(53)	55
Operating lease liabilities	(2,238)	(3,088)
Net cash used in operating activities	(34,729)	(43,334)
Cash flows from investing activities:		
Purchases of property and equipment	(5,993)	(4,658)
Proceeds from sales of property and equipment	337	—
Purchases of investments in marketable securities	(28,130)	(254,225)
Proceeds from maturities of marketable securities	149,175	—
Net cash provided by (used in) investing activities	115,389	(258,883)
Cash flows from financing activities:		
Proceeds from issuance of common stock upon exercise of vested stock options	18	13
Proceeds from employee stock purchase plan	157	414
Repurchase of unvested early exercised shares and founders' shares	(59)	(15)
Net cash provided by financing activities	116	412
Net increase (decrease) in cash, cash equivalents and restricted cash	80,776	(301,805)
Cash, cash equivalents and restricted cash, at beginning of period	49,446	378,692
Cash, cash equivalents and restricted cash, at end of period	$ 130,222	$ 76,887
Reconciliation of cash, cash equivalents and restricted cash to statement of financial position:		
Cash and cash equivalents	128,506	75,171
Restricted cash	1,716	1,716
Cash, cash equivalents and restricted cash in statement of financial position	$ 130,222	$ 76,887
Supplemental disclosures of non-cash investing and financing information:		
Property and equipment purchases in accounts payable and accrued expenses	$ —	$ (395)
Lessor funded lease incentive additions included in property and equipment	$ 7,193	$ —
Proceeds from sale of property and equipment in accounts receivable	$ 119	$ —
Additions to ROU assets from new operating lease liabilities	$ 31,974	$ —
Vesting of early exercised stock options	$ 43	$ 96
Repurchase of unvested early exercised shares included in accounts payable	$ (6)	$ —

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

Graphite Bio, Inc.
Notes to Condensed Financial Statements
(unaudited)

1.Description of Business, Organization and Liquidity

Organization and Business

Graphite Bio, Inc. (the "Company") is a clinical-stage, next-generation gene editing company. In January 2023, the Company announced a voluntary pause of its Phase 1/2 CEDAR study of nulabeglogene autogedtemcel (nula-cel), the Company's lead product candidate for sickle cell disease (SCD), due to a serious adverse event in the first patient dosed, which the Company concluded is likely related to study treatment. Nula-cel was designed to provide a highly differentiated approach with the potential to directly correct the mutation that causes SCD and restore normal adult hemoglobin (HgbA) expression.

In February 2023, the Company announced its decision to discontinue the development of nula-cel and initiate a process to explore strategic alternatives (the "Restructuring Plan"). As a result of this decision, the Company conducted a corporate restructuring that resulted in an approximately 50% reduction in force in February 2023 and an additional reduction in July 2023 that resulted in a total reduction in force of 71.2%. In addition, the Company also intends to sublease some of its facilities to recover a portion of the total costs. Together, these restructuring actions are intended to reduce the Company's operational cash burn in an effort to maximize its strategic optionality.

The Company also disclosed its intention to continue research activities associated with its pre-clinical non-genotoxic conditioning program, with the goal of advancing toward one or more potential development candidates. In August 2023, the Company entered into a license and option agreement, pursuant to which it granted a third-party an option to acquire certain of the Company's technology and intellectual property related to its nula-cel program and related pre-clinical platform assets. The Company also entered into an asset purchase agreement pursuant to which the Company transferred to another third-party its pre-clinical non-genotoxic conditioning program, including its technology and intellectual property. The Company continues to explore strategic alternatives.

From its inception in 2017, the Company's primary activities have been to perform research and development, undertake preclinical studies and enable manufacturing activities in support of its product development efforts, organize and staff the Company, establish its intellectual property portfolio, and raise capital to support and expand such activities.

The Company was incorporated in Ontario, Canada in June 2017 as Longbow Therapeutics Inc., and was reincorporated in the State of Delaware in October 2019. In February 2020, the Company changed its name to Integral Medicines, Inc., and again in August 2020, changed the name to Graphite Bio, Inc. Research and development of the Company's initial technology ceased at the end of 2018, and the Company did not have any significant operations or any research and development activities in 2019. In March 2020, the Company identified new gene editing technology which the Company sought to further develop, and the Company licensed the related intellectual property rights from The Board of Trustees of the Leland Stanford Junior University ("Stanford") in December 2020 (Note 6).

Liquidity Matters

The Company has incurred significant operating losses since inception and has primarily relied on private equity and convertible debt financings to fund its operations. As of June 30, 2023, the Company had an accumulated deficit of $321.7 million. The Company expects to continue to incur substantial losses, and its transition to profitability will depend on the successful development, approval and commercialization of product candidates and on the achievement of sufficient revenues to support its cost structure. The Company may never achieve profitability, and unless and until then, the Company will need to continue to raise additional capital. Management expects that the existing cash, cash equivalents, and marketable securities of $246.7 million as of June 30, 2023 will be sufficient to fund the Company's current operating plan for at least the next 12 months from the date of issuance of these unaudited condensed financial statements.

On July 21, 2022, the Company filed a shelf registration statement on Form S-3 (the "2022 Shelf") with the SEC in relation to the registration of up to an aggregate offering price of $300.0 million of common stock, preferred stock, debt securities, warrants and units or any combination thereof. The Company also simultaneously entered into a Controlled Equity Offering^{SM} Sales Agreement with Cantor Fitzgerald & Co. (the "Sales Agent"), to provide for the offering, issuance and sale by the Company of up to an aggregate of $75.0 million of its common stock from time to time in "at-the-market" offerings under the 2022 Shelf and subject to the limitations thereof (the "Sales Agreement"). The Company will pay to the Sales Agent cash commissions of up to 3.0 percent of the gross proceeds of sales of common stock under the Sales Agreement. The Company has not issued any shares or received any proceeds from any offerings under the 2022 Shelf through August 14, 2023.

2. Summary of Significant Accounting Policies

Basis of Presentation

These financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”).

Unaudited Interim Condensed Financial Statements

The interim condensed balance sheet as of June 30, 2023 and the condensed statements of operations and comprehensive loss and stockholders’ equity for the three and six months ended June 30, 2023 and 2022 and the condensed statements of cash flows for the six months ended June 30, 2023 and 2022 are unaudited. The unaudited interim condensed financial statements have been prepared on the same basis as the annual financial statements and reflect, in the opinion of management, all adjustments of a normal and recurring nature that are necessary for the fair statement of the Company’s financial position as of June 30, 2023 and its results of operations for the three and six months ended June 30, 2023 and cash flows for the six months ended June 30, 2023 and 2022. The financial data and the other financial information disclosed in these notes to the financial statements related to the three and six month periods are also unaudited. The results of operations for the three and six months ended June 30, 2023 are not necessarily indicative of the results to be expected for the year ending December 31, 2023 or for any other future annual or interim period. The condensed balance sheet as of December 31, 2022 included herein was derived from the audited financial statements as of that date. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted from these interim financial statements. These condensed financial statements should be read in conjunction with the Company's audited financial statements and the related notes thereto for the year ended December 31, 2022, which are included in the Company’s Annual Report on Form 10-K filed with the SEC.

Significant Accounting Policies

The significant accounting policies used in preparation of these condensed financial statements for the three and six months ended June 30, 2023 are consistent with those discussed in Note 2 to the condensed financial statements included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2022, except as noted below and within the “Adopted and Recently Issued Accounting Pronouncements” section.

Use of Estimates

The preparation of condensed financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the condensed financial statements, and the reported amounts of expenses during the reporting period. On an ongoing basis, the Company evaluates estimates and assumptions, including but not limited to those related to the fair value of the marketable securities, stock-based compensation expense, accruals for research and development costs, lease assets and liabilities, the valuation of deferred tax assets, valuation of uncertain income tax positions, and impairment of long-lived assets. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with a maturity of three months or less at the date of purchase to be cash equivalents. As of June 30, 2023 and December 31, 2022, cash and cash equivalents consisted of cash, money market funds, and commercial paper.

Restricted Cash

Restricted cash of $1.7 million as of June 30, 2023 and December 31, 2022 represented security deposits in the form of letters of credit issued in connection with the leases of the Company’s headquarters (Notes 6 and 8).

Marketable Securities

The Company’s marketable securities are accounted for as available-for-sale and recorded at fair value with the related unrealized gains and losses included in accumulated other comprehensive gain (loss).

The Company reviews its investment portfolio to identify and evaluate investments that have an indication of possible other-than-temporary impairment. Factors considered in determining whether a loss is other-than-temporary include the length of time and extent to which fair value has been less than the cost basis, the financial condition and near-term prospects of the investee and the Company's intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value.

Operating Leases

The Company accounts for its operating leases by recording right-of-use assets and lease liabilities on the Company's condensed balance sheets in accordance with Accounting Standards Codification ("ASC") 842, "Leases" ("ASC 842"). Right-of-use assets represent the Company's right to use an underlying asset over the lease term and include any lease payments made prior to the lease commencement date and are reduced by lease incentives. Lease liabilities represent the present value of the total lease payments over the lease term, calculated using the Company's incremental borrowing rate. The incremental borrowing rate is determined by using the rate of interest that the Company would pay to borrow on a collateralized basis an amount equal to the lease payments for a similar term and in a similar economic environment. The Company recognizes options to extend a lease when it is reasonably certain that it will exercise such extension. The Company does not recognize options to terminate a lease when it is reasonably certain that it will not exercise such early termination options. Lease expense is recognized on a straight-line basis over the expected lease term.

Recently Issued and Adopted Accounting Pronouncements

The Company is a smaller reporting company and an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). Under the JOBS Act, emerging growth companies can delay the adoption of new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. Thus, the Company has elected to use the extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that (i) the Company is no longer an emerging growth company or (ii) the Company affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. The Company may early adopt certain accounting standards, as the JOBS Act does not preclude an emerging growth company from adopting a new or revised accounting standard earlier than the time that such standard applies to private companies to the extent early adoption is permitted.

3. Fair Value of Financial Assets

Assets and liabilities recorded at fair value on a recurring basis in the condensed balance sheets, as well as assets and liabilities measured at fair value on a non-recurring basis or disclosed at fair value, are categorized based upon the level of judgment associated with inputs used to measure their fair values. The accounting guidance for fair value provides a framework for measuring fair value and requires certain disclosures about how fair value is determined. Fair value is defined as the price that would be received upon the sale of an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date.

The accounting guidance also establishes a three-level valuation hierarchy that prioritizes the inputs to valuation techniques used to measure fair value based upon whether such inputs are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions made by the reporting entity. The three-level hierarchy for the inputs to valuation techniques is briefly summarized as follows:

Level 1 — Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date;

Level 2 — Inputs are observable, unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the related assets or liabilities; and

Level 3 — Unobservable inputs that are significant to the measurement of the fair value of the assets or liabilities that are supported by little or no market data.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. An assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability. Changes in the ability to observe valuation inputs may result in a reclassification of levels of certain securities within the fair value hierarchy. The Company recognizes transfers into and out of levels within the fair value hierarchy in the period in which the actual event or change in circumstances that caused the transfer occurs.

As of June 30, 2023 and December 31, 2022, Level 1 securities consist of U.S. Treasury and money market funds, for which the carrying amounts are based on the quoted market prices in active markets.

As of June 30, 2023 and December 31, 2022, Level 2 securities consist of highly rated commercial paper, U.S. agency securities, and asset-backed securities, for which fair value is determined through the use of models or other valuation methodologies. The Company had an immaterial amount of unrealized gains on its Level 2 securities as of June 30, 2023 and December 31, 2022.

During the periods presented, the Company did not have any Level 3 securities.

The following tables set forth the financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy as of June 30, 2023 and December 31, 2022 (in thousands):

	June 30, 2023			
	Total Fair Value	Level 1	Level 2	Level 3
Cash equivalents:				
Money market funds [(1)]	$ 128,506	$ 128,506	$ —	$ —
Commercial paper [(1)]	-	—	—	—
Total cash equivalents	128,506	128,506	—	—
Marketable securities:				
U.S. treasuries[(2)]	4,426	4,426	—	—
Commercial paper[(2)]	58,071	—	58,071	—
U.S. agency securities[(2)]	53,709	—	53,709	—
Asset-backed securities[(2)]	1,953	—	1,953	—
Total marketable securities	118,159	4,426	113,733	—
Total cash equivalents and marketable securities	$ 246,665	$ 132,932	$ 113,733	$ —

	December 31, 2022			
	Total Fair Value	Level 1	Level 2	Level 3
Cash equivalents:				
Money market funds [(1)]	$ 45,739	$ 45,739	$ —	$ —
Commercial paper [(1)]	1,991	—	1,991	—
Total cash equivalents	47,730	45,739	1,991	—
Marketable securities:				
U.S. treasuries[(2)]	65,391	65,391	—	—
Commercial paper[(2)]	115,061	—	115,061	—
U.S. agency securities[(2)]	53,455	—	53,455	—
Asset-backed securities[(2)]	1,914	—	1,914	—
Total marketable securities	235,821	65,391	170,430	—
Total cash equivalents and marketable securities	$ 283,551	$ 111,130	$ 172,421	$ —

(1)Included within cash and cash equivalents on the condensed balance sheet.

(2)Included within investments in marketable securities, current and investments in marketable securities, non-current on the condensed balance sheet.

4. Marketable Securities

All marketable securities were considered available-for-sale as of June 30, 2023 and December 31, 2022. The amortized cost, gross unrealized holding gains or losses, and fair value of the Company's marketable securities by major security type are summarized in the tables below (in thousands):

	June 30, 2023			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
Available-for-sale securities				
U.S. treasuries	$ 4,447	$ —	$ (21)	$ 4,426
Commercial paper	58,103	6	(38)	58,071
U.S. agency securities	53,922	—	(213)	53,709
Asset-backed securities	1,958	—	(5)	1,953
Total available-for-sale securities	$ 118,430	$ 6	$ (277)	$ 118,159

	December 31, 2022			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
Available-for-sale securities				
U.S. treasuries	$ 65,807	$ —	$ (416)	$ 65,391
Commercial paper	115,381	13	(333)	115,061
U.S. agency securities	53,767	15	(327)	53,455
Asset-backed securities	1,914	—	—	1,914
Total available-for-sale securities	$ 236,869	$ 28	$ (1,076)	$ 235,821

The amortized cost of available-for-sale securities is adjusted for amortization of premiums and accretion of discounts to maturity. As of June 30, 2023, the aggregate fair value of securities with remaining maturities of less than one year held by the Company in an unrealized loss position was $118.2 million. As of June 30, 2023, the Company did not hold any securities with remaining maturities of more than one year in an unrealized loss position. The Company has the intent and ability to hold such securities until recovery and has determined that there has been no material change to its credit risk. As a result, the Company determined it did not hold any investments with a credit loss at June 30, 2023.

There were no realized gains or losses recognized on the sale or maturity of available-for-sale securities during the three and six months ended June 30, 2023, and as a result, there were no reclassifications out of accumulated other comprehensive gain (loss) for the same periods.

5. Balance Sheet Components

Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets as of June 30, 2023 and December 31, 2022 consisted of the following (in thousands):

	June 30, 2023	December 31, 2022
Advances to suppliers	$ 39	$ 2,486
Prepaid insurance	19	1,343
Other prepaid expenses	2,820	3,307
Total prepaid expenses and other current assets	$ 2,878	$ 7,136

Property and Equipment, Net

Property and equipment, net as of June 30, 2023 and December 31, 2022 consisted of the following (in thousands):

	June 30, 2023	December 31, 2022
Furniture and fixtures	$ 1,283	$ 321
Computers and network equipment	251	251
Lab equipment	8,034	12,521
Leasehold improvements	11,427	304
Construction-in-progress	245	12,440
Total property and equipment	21,240	25,837
Less: accumulated depreciation	(3,275)	(3,207)
Total property and equipment, net	17,965	22,630

Depreciation expense for the three and six months ended June 30, 2023 was $0.8 million and $1.5 million, respectively. Depreciation expense for the three and six months ended June 30, 2022 was $0.6 million and $1.0 million, respectively.

Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of June 30, 2023 and December 31, 2022 consisted of the following (in thousands):

	June 30, 2023	December 31, 2022
Professional fees	$ 234	$ 367
Early exercise liability	55	150
Other accrued expenses	3,063	1,354
Accrued employee termination benefits	439	—
Total accrued expenses and other current liabilities	$ 3,791	$ 1,871

6. Significant Agreements

Stanford Exclusive License Agreement and Option Agreement

In December 2020, the Company entered into an exclusive license agreement (the "License Agreement") with The Board of Trustees of the Leland Stanford Junior University (Stanford), pursuant to which Stanford granted the Company a worldwide license to specified technology and patent rights to develop, manufacture and commercialize human prophylactic and therapeutic products. Other than with respect to specified, broadly applicable assays and procedures and subject to retained rights by Stanford, the license is exclusive with respect to human prophylactic and therapeutic products for the treatment of SCD, XSCID and beta thalassemia. The license is non-exclusive with respect to those broadly applicable assays and procedures and with respect to all human prophylactic and therapeutic products other than for the treatment of SCD, XSCID and beta thalassemia.

Pursuant to the License Agreement, the Company paid an upfront license fee of $50.0 thousand and as additional consideration for the license, the Company agreed to issue to Stanford approximately 0.6 million shares of common stock. As of December 31, 2020, the Company recorded its obligations to issue Stanford shares of common stock at an estimated fair value of $2.8 million to additional paid in capital. The shares of common stock were expected to be issued when Stanford provided the inventors' names for allocation of the shares. Stanford also received an option to purchase up to 10% of newly issued shares in the future private financings at the price paid by other participating investors. During the year ended December 31, 2021, the Company entered into an amendment to the License Agreement, pursuant to which it extended the time when the shares would be issued to May 7, 2021.

On May 7, 2021, the Company issued an aggregate of 640,861 shares of the Company's common stock to Stanford and certain individuals designated by Stanford in consideration for rights granted to the Company under the Company's exclusive license agreement.

On June 18, 2021, the Company exercised its right to repurchase an aggregate of 624,845 shares from each founder and investor under the Stanford Adjustment Repurchase Right as described below.

The acquisition of the exclusive license, including patent rights and know-how, and clinical supplies was accounted for as an asset acquisition and as the acquired technology and inventories did not have an alternative use, the total consideration of $2.8 million was recorded as research and development expense in the statements of operations and comprehensive loss for the year ended December 31, 2020.

In connection with the License Agreement, the Company reimbursed Stanford $0.2 million for previously incurred patent costs, which were recorded in general and administrative expenses for the year ended December 31, 2020 and in addition, is obligated to reimburse future patent costs. The Company is also obligated to pay annual maintenance fees as follows: $5.0 thousand in the first year, $10.0 thousand in each year 2 and 3, $25.0 thousand in each year 3 through 6, $50.0 thousand each subsequent year until first commercial sale and $200.0 thousand each subsequent year after the first commercial sale. No fees were recorded during the three and six months ended June 30, 2023. The Company did not record any patent fees during the three and six months ended June 30, 2023.

The Company is obligated to make future development and regulatory milestone payments in total of up to $5.3 million, sales based milestone payments of up to $7.5 million and royalties on future sales at percentage rates ranging in the low single digits. In addition, if the Company receives any sublicense income, it is required to share it with Stanford as a certain percentage defined for each milestone in the License Agreement. The Company will record the maintenance fees, when payable, and will record milestones when contingencies are resolved and milestones are due. No milestones were achieved and recorded as of June 30, 2023.

In January 2021, the Company entered into an option agreement (the "First Option Agreement") with Stanford, pursuant to which Stanford granted the Company the right to obtain a license to specified patent rights relating to human prophylactic and therapeutic products. The Company may exercise the option in whole or in part to obtain a license under one or more of the optioned patent rights.

Subject to the Company's exercise of the option under the First Option Agreement and its execution of an amendment to the License Agreement that incorporates the optioned patent rights and any optioned technology, the Company has agreed to issue to Stanford 132,137 shares of its common stock and pay a license execution fee of $10.0 thousand.

The term of the First Option Agreement expires 18 months after its effective date, subject to the Company's right to extend such expiration date by up to an additional one year upon notice to Stanford and by another additional one year upon the reasonable agreement of Stanford. The First Option Agreement will terminate if the License Agreement terminates. On June 23, 2022, the Company exercised its right to extend the term of the First Option Agreement for an additional year. On June 6, 2023, the Company and Stanford agreed to extend the term of the First Option Agreement for another additional year. As of June 30, 2023, the Company had not exercised the option under the First Option Agreement and no fees have been paid for the First Option Agreement.

In April 2021, the Company entered into an option agreement (the "Second Option Agreement") with Stanford to negotiate the license for additional technologies from Stanford. Pursuant to the Second Option Agreement, the Company agreed to pay Stanford option fees in an aggregate amount of $30.0 thousand over the term of the option. On April 13, 2022, the Company entered into an amendment to the Second Option Agreement which extended the term for an additional year. On March 8, 2023, the Company terminated the Second Option Agreement without exercising the option to negotiate a license for additional technologies from Stanford. No maintenance fees were paid during the three and six months ended June 30, 2023.

LCGM Service Agreement

On August 30, 2021, the Company entered into a Master Manufacturing and Service Agreement with the Laboratory for Cell & Gene Medicine at Stanford ("LCGM MSA"). Pursuant to the LCGM MSA, LCGM will conduct clinical manufacturing, release testing, and product release for nula-cel in the Company's Phase 1/2 CEDAR clinical trial to treat SCD. During 2021, the Company entered into various SOWs under the LCGM MSA under which it received technology transfer and related services for HBB Beta-Globin Gene Variant for SCD, manufacturing engineer test runs, the exclusive use of a manufacturing suite at the LCGM facility, and Phase 1/2 CEDAR clinical development and manufacturing of the HBB Variant for SCD. During the three months ended June 30, 2023, the Company did not recognize any research and development expense in connection with the LCGM MSA. The Company recognized $1.1 million during the six months ended June 30, 2023. During the three and six months ended June 30, 2022, the Company recognized $1.3 million and $2.8 million, respectively, in research and development expense in connection with the LCGM MSA. As of June 30, 2023, the Company does not expect to incur any additional expenses associated with the LCGM MSA.

IDT License Agreement

On June 7, 2021, the Company entered into a License Agreement ("IDT License Agreement") with Integrated DNA Technologies, Inc. ("IDT"). Pursuant to the IDT License Agreement, IDT granted the Company and its affiliates a worldwide, non-exclusive, sublicensable license to research and develop products incorporating HiFi Cas9 protein variants for use in human therapeutic applications for SCD, XSCID and Gaucher disease (the "Field") and a worldwide, exclusive, sublicensable license to commercialize such products in the Field. The Company has also been granted the right to expand the licensed Field to include human therapeutic applications in the additional fields of beta thalassemia disorder and lysosomal storage disorders upon the payment of an exercise fee in the amount of $0.5 million per additional field or $1.0 million for both additional fields.

In consideration of the licenses and rights granted to the Company under the IDT License Agreement, the Company agreed to pay to IDT an upfront payment in the amount of $3.0 million and up to $5.3 million (or $8.8 million if the Company elects to expand the Field as described above to include both the beta thalassemia and lysosomal storage disorders fields) in total regulatory milestone payments. Each regulatory milestone payment is payable once on an indication-by-indication basis. In addition, the Company has agreed to pay IDT a low single-digit royalty on the net sales of products, subject to reductions in specified circumstances. As the acquisition of the license was accounted for as an asset acquisition and as the acquired technology did not have an alternative use, the total consideration of $3.0 million was recorded as research and development expense in the statements of operations and comprehensive loss during the year ended December 31, 2021.

The IDT License Agreement remains in effect on a country-by-country and product-by-product basis until the expiration of the royalty term for such product in such jurisdiction. The Company and IDT each have the right to terminate the IDT License Agreement for the other party's material breach of its obligations under the IDT License Agreement, subject to specified rights to cure. Additionally, the Company may terminate the IDT License Agreement for any reason upon written notice.

During the three and six months ended June 30, 2023, the Company has not recognized any research and development expense in connection with the IDT License Agreement. There are no milestones probable as of June 30, 2023 and 2022; therefore, no milestone payments have been recognized in the three and six months ended June 30, 2023 and 2022. As of June 30, 2023, the Company does not expect to incur any additional expenses associated with the IDT License Agreement.

7. Commitments and Contingencies

Research and Development Agreements

The Company enters into contracts in the normal course of business with CROs for clinical trials, with CMOs or other vendors for preclinical and clinical studies, supplies and other services and products for operating purposes. These contracts generally provide for termination on notice or may have a potential termination fee if a purchase order is cancelled within a specified time. As of June 30, 2023 and December 31, 2022, there were no amounts accrued related to termination and cancellation charges.

License Agreements

The Company enters into license agreements (Note 6), pursuant to which the Company may acquire or license other patents, patent applications or know-how from various third parties to access intellectual property covering product candidates that the Company is developing. Under these acquisitions or licensing agreements, the Company may be liable for certain diligence obligations and payments, which are contingent upon achieving various development, regulatory and commercial milestones. Also, pursuant to the terms of some of these license agreements, when and if commercial sales of a product commence, the Company may be obligated to pay royalties to such third parties on net sales of the respective products. No such milestones were achieved or probable as of June 30, 2023 and December 31, 2022. All products are in development as of June 30, 2023 and December 31, 2022 and no such royalties were due.

Legal Contingencies

From time to time, the Company may become involved in legal proceedings arising from the ordinary course of business. The Company records a liability for such matters when it is probable that future losses will be incurred and that such losses can be reasonably estimated. Significant judgment by the Company is required to determine both probability and the estimated amount. Management is currently not aware of any legal matters that could have a material adverse effect on its financial position, results of operations or cash flows.

Guarantees and Indemnifications

In the normal course of business, the Company enters into agreements that contain a variety of representations and provide for general indemnification. Its exposure under these agreements is unknown because it involves claims that may be made against the Company in the future. To the extent permitted under Delaware law, the Company has agreed to indemnify its directors and officers for certain events or occurrences while the director or officer is, or was serving, at a request in such capacity. To date, the Company has not paid any claims or been required to defend any action related to its indemnification obligations. As of June 30, 2023 and December 31, 2022, the Company did not have any material indemnification claims that were probable or reasonably possible and consequently has not recorded related liabilities.

8. Operating Leases

As of June 30, 2023, the current and non-current portions of the total liability for operating leases was $2.9 million and $50.6 million, respectively. As of June 30, 2023, the weighted average remaining lease term on the operating leases is 111 months. The weighted average incremental borrowing rate used to determine the operating lease liabilities included on the condensed balance sheet was 10.9%.

Facility leases

On January 27, 2021, the Company entered into a new lease agreement for office and lab space in South San Francisco, California that included two office suites. The lease terms for the two office suites commenced during July and August 2021, respectively. The term of the lease is 44 months for the first office suite and 43 months for the second office suite with an option to extend the term for an additional two years on the same terms and conditions. This option to extend the lease term was not determined to be reasonably certain and therefore has not been included in the Company’s calculation of the associated operating lease liability under ASC 842. The corresponding right-of-use assets and lease liabilities related to the two office suites were recorded on the Company’s balance sheet upon the lease commencement date, which was the date the Company was deemed to have obtained control of the premises.

On November 10, 2021, the Company entered into a sublease agreement for office and lab space located in Brisbane, California. The sublease expires on December 6, 2023. The corresponding right-of-use assets and lease liabilities related to the sublease were recorded on the Company’s balance sheet upon the lease commencement date, which was the date the Company was deemed to have obtained control of the premises.

On December 16, 2021, the Company entered into a lease agreement with Bayside Area Development, LLC (“Bayside”) for 85,165 square feet of office and laboratory space in South San Francisco, CA. The lease for the office and laboratory space commenced in April 2023. The term of the lease is 120 months with the option to extend the term up to an additional ten years. This option to extend the lease term was not determined to be reasonably certain and therefore has not been included in the Company’s calculation of the associated operating lease liability under ASC 842. During the three and six months ended June 30, 2023, the Company took possession of the Bayside lease and recognized a $32.0 million right-of-use asset and corresponding lease liability upon the lease commencement date. In addition, the Company recognized $27.2 million in leasehold improvements. Bayside provided a tenant improvement allowance of up to $14.9 million, of which $14.7 million was utilized and recorded in lease liability.

In connection with the Restructuring Plan, the Company has determined that it will not utilize this facility for purposes of its own operations, and as a result, intends to sublease the vacant space to recover a portion of the total cost upon recognition of the lease. The Company performed a recoverability test by comparing the future cash flows attributable to the asset group to the carrying value of the long-lived assets. Future cash flows were estimated using comparable laboratory and office facilities lease terms discounted at a market discount rate over the remaining term of the Company's lease. For the three and six months ended June 30, 2023, the Company recorded a non-cash impairment of $35.0 million to the right-of-use asset and related leasehold improvements, which was included in restructuring and impairment costs in the condensed statements of operations and comprehensive loss.

As of June 30, 2023, the Company had operating lease right-of-use assets of $15.8 million and operating lease liabilities of $53.4 million related to the office suite leases recorded on its condensed balance sheet.

Embedded leases

On May 10, 2021 and August 30, 2021, the Company and LCGM entered into the LCGM MSA and SOW #3, respectively, for the exclusive use of a manufacturing suite at the LCGM facility. Pursuant to the terms of SOW #3, LCGM agreed to provide the Company with certain dedicated space for the clinical manufacturing, release testing, and product release in the Company’s Phase 1/2 CEDAR clinical trial to treat sickle cell disease. The Company concluded that the agreement contains an embedded lease as the Company controls the use of a dedicated manufacturing suite and the equipment therein. The agreement includes fixed lease payments of $5.6 million from inception of lease through April 30, 2023, the expiration date of SOW #3. As of June 30, 2023, the Company has paid all fixed lease payments on the LCGM embedded lease.

The Company and Explora BioLabs, Inc. (“Explora”) entered into a License Service Agreement and Master Services Agreement (together, the “Explora Agreements”) on November 17, 2021 and December 16, 2021, respectively. Pursuant to the terms of the Explora Agreements, Explora agreed to provide a certain dedicated space to perform in vitro or in vivo studies, obtain or house research animals, and provide scientific or technical consultation to the Company. The Company concluded that the agreement contains an embedded lease as the Company controls the use of a dedicated manufacturing suite and the equipment therein. The Explora Agreements contain fixed lease payments of $0.7 million from inception of lease through November 2023.

As of June 30, 2023, the Company had operating lease right-of-use assets of $0.2 million and operating lease liabilities of $0.1 million related to the embedded leases recorded on its condensed balance sheet.

Operating Lease Obligations

As of June 30, 2023, the future minimum lease payments for the Company's operating leases for each of the years ending December 31 were as follows (in thousands):

		Amount
2023 (Remaining six months)	$	4,024
2024		9,177
2025		8,336
2026		8,223
2027		8,493
Thereafter		50,103
Total undiscounted lease payments		88,356
Present value adjustment		(34,814)
Total net lease liabilities	$	53,542

Lease expense was $2.3 million and $4.0 million for the three and six months ended June 30, 2023, respectively. Lease expense was $1.6 million and $3.3 million for the three and six months ended June 30, 2022, respectively.

Under the terms of the remaining lease agreements, the Company is also responsible for certain variable lease payments that are not included in the measurement of the lease liability. Variable lease payments for operating leases were $0.7 million and $1.1 million for the three and six months ended June 30, 2023, respectively, including non-lease components such as common area maintenance fees, taxes, and insurance. Variable lease payments for operating leases were $0.4 million and $0.7 million for the three and six months ended June 30, 2022, respectively.

The following information represents supplemental disclosure for the statement of cash flows related to the operating leases (in thousands):

		June 30, 2023
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows under operating leases	$	2,956

9. Common Stock

As of June 30, 2023 and December 31, 2022, the Company was authorized to issue 300,000,000 shares of its common stock with $0.00001 par value per share. Each share of the Company's common stock is entitled to one vote. In connection with the IPO in June 2021, all outstanding shares of redeemable convertible preferred stock were converted into 30,761,676 shares of common stock. The IPO closed on June 29, 2021, pursuant to which the Company issued and sold 14,000,000 shares of its common stock at a public offering price of $17.00 per share.

On June 29, 2021, the underwriters also exercised their option to purchase an additional 2,100,000 shares of common stock at the IPO price, less the underwriting discounts and commissions. The closing of the offering of the additional shares occurred on July 2, 2021. The Company issued and sold 2,100,000 shares of its common stock at a public offering price of $17.00 per share.

Shares Reserved for Future Issuance

As of June 30, 2023 and December 31, 2022, the Company reserved common stock for future issuances as follows:

	June 30, 2023	December 31, 2022
Outstanding stock option awards	9,005,490	7,755,303
Shares available for future stock option grants	7,188,823	5,382,907
ESPP shares available for future grants	1,253,729	754,951
Total shares reserved for future issuance	17,448,042	13,893,161

Founders' and Investor's Restricted Common Stock

In March 2020, the Board approved and in April 2020, the Company issued 6,081,413 shares of its common stock to its founders and 2,467,104 shares of its common stock to its investor at the purchase price of $0.00002 per share. As of December 31, 2020, the investor's shares were fully vested and a portion of the shares issued were subject to the Company's option to repurchase per the Stanford Adjustment Repurchase Right, as described below.

The shares of the Company's common stock issued to its founders for their services as an employee, advisor, or consultant vest monthly over four years with one year cliff from the vesting commencement date. The vesting commencement date was the date of the initial closing of the Series A preferred stock financing or June 24, 2020. Pursuant to the restricted stock purchase agreements with each of the founders, the vesting of the founders' common stock shares could be accelerated upon the occurrence of certain events, including signing of the term sheet for the license with Stanford, a change in control, or if the founder's service is terminated by the Company without cause. The Company signed the term sheet with Stanford in June 2020, and as a result, an aggregate of 912,212 shares of founders' common stock vested pursuant to the acceleration terms.

If a founder terminates the service relationship with the Company during the vesting period, the Company may repurchase any unvested restricted common stock at the price per share equal to the lower of (i) the original purchase price, subject to adjustment in the event of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split, or (ii) the current fair market value as of the date the Company elects to exercise its Stanford Adjustment Repurchase Right, as described below. The repurchase right lapses in 180 days after the termination of the founder's service or employment. During the vesting term, holders of founders' common stock awards are deemed to be common stockholders and have the right to receive dividends and voting rights.

The founders' shares of common stock are also subject to the Company's option to repurchase per the Stanford Adjustment Repurchase Right, as described below.

The Company accounts for shares issued to founders as equity compensation awards and the estimated fair value at the grant date was minimal. During the three and six months ended June 30, 2023, the Company repurchased 152,694 shares of founders' common stock awards. 1,172,289 and 1,938,430 shares of founders' common stock awards were unvested and expected to vest in 1.0 years and 1.5 years as of June 30, 2023 and December 31, 2022, respectively.

Stanford Adjustment Repurchase Right

Upon the issuance of shares of common stock to Stanford pursuant to the License Agreement, as discussed in Note 6, the Company has a right to repurchase from each founder and an investor a number of shares of common stock equal to the number of shares issued to Stanford multiplied by the applicable number of shares issued to the founder or investor, as applicable, divided by 7,273,848 shares (a fully diluted number of shares of the Company at the end of March 2020, after the founders' and investor's shares were approved by the board of directors). The Stanford Adjustment Repurchase Right may be exercised by the Company within six months following the date of the issuance of the shares of common stock to Stanford. The repurchase price per share is equal to the lower of (i) the purchase price, subject to adjustment in the event of any reorganization, recapitalization, reclassification, etc., or (ii) the current fair market value as of the date the Company elects to exercise its Stanford Adjustment Repurchase Right.

On May 7, 2021, the Company issued an aggregate of 640,861 shares of the Company's common stock to Stanford and certain individuals designated by Stanford in consideration for rights granted to the Company under the Company's exclusive license agreement.

On June 18, 2021, the Company exercised its right to repurchase an aggregate of 624,845 shares from each founder and investor under the Stanford Adjustment Repurchase Right. As of June 30, 2023, the Company has not exercised the right to repurchase the remaining 16,016 shares.

The Company accounts for the founders and investor's shares of restricted common stock as equity share-based awards.

10. Equity Incentive Plans

2020 Stock Option and Grant Plan

Prior to the effectiveness of the registration statement on Form S-1 (File No. 333-256838) for its IPO, the Company granted share-based awards under the 2020 Stock Option and Grant Plan, as amended (the "2020 Plan"). The Company was authorized to grant under the 2020 Plan incentive stock options, nonqualified stock options, restricted stock awards, restricted stock units and other share-based awards to the Company's officers, employees, directors and consultants. Options under the 2020 Plan could be granted for periods of up to 10 years and at prices no less than 100.0% of the estimated fair value of the shares on the date of grant as determined by the Board, provided, however, that the exercise price of an incentive stock option granted to a 10.0% stockholder shall not be less than 110.0% of the estimated fair value of the shares on the date of grant and the option is not exercisable after the expiration of five years from the date of grant. Options generally vest monthly over four years with or without one year cliff vesting. Per the 2020 Plan, granted options may be early exercised prior to vesting and the Company will issue shares of restricted stock upon the early exercise with vesting terms consistent with the original grant. Upon completion of the Company's IPO, the remaining shares available for issuance under the 2020 Plan were retired, and the Company no longer grants awards pursuant to the 2020 Plan.

2021 Stock Option and Incentive Plan

In June 2021, the Company's board of directors approved the 2021 Stock Option and Incentive Plan (the "2021 Plan") that became effective immediately prior to the date when the Company's prospectus was declared effective by the SEC on June 24, 2021. The Company initially reserved 5,636,000 shares of common stock for issuance of awards under the 2021 Plan. The 2021 Plan provides that the number of shares reserved and available for issuance under the plan will automatically increase each January 1, beginning on January 1, 2022, by 5% of the outstanding number of shares of the Company's common stock on the immediately preceding December 31, or such lesser number of shares as determined by the Company's compensation committee. On January 1, 2022 and 2023, the number of shares of common stock available under the 2021 Plan increased by 2,900,541 shares and 2,911,088 shares, respectively pursuant to this evergreen provision of the 2021 Plan. The option exercise price of each option will be determined by the Company's compensation committee but generally may not be less than 100% of the fair market value of the Company's common stock on the date of grant. The term of each option will be fixed by the Company's compensation committee and may not exceed ten years from the date of grant. The grant date fair value of all awards made under the 2021 Plan and all other cash compensation paid by the Company to any non-employee director for services as a non-employee director in any calendar year may not exceed $1.0 million for the first year of service and $750.0 thousand for each year of service thereafter.

As of June 30, 2023, there were 7,188,823 shares available for future issuance under the 2021 Plan.

Restricted Stock Awards

During the year ended December 31, 2020, the Company issued 832,983 shares as restricted stock awards under the 2020 Plan. The purchase price of the restricted common stock awards was fair value as determined by the Board at the issuance date. The shares vest monthly over four years with the one-year cliff vesting from the grant date. Upon termination of employment, the Company has the right to repurchase any unvested restricted shares. The repurchase price for unvested shares of common stock will be the lower of (i) the fair market value on the date of repurchase or (ii) their original purchase price. There were no grants of restricted stock awards for the three and six months ended June 30, 2023 and 2022.

The Company accounted for restricted stock awards as early exercised options and recognized a liability in other liabilities when cash was received for the purchase of shares of restricted stock awards. As shares of restricted stock awards vest, the Company reclassified the liability to common stock and additional paid in capital. As of June 30, 2023 and December 31, 2022, the Company recorded a minimal liability for restricted stock awards included in other liabilities.

There were 9,594 shares of restricted stock award shares canceled and repurchased during the three and six months ended June 30, 2023. No shares were canceled and repurchased during the three and six months ended June 30, 2022. There were 653,970 and 553,443 shares of restricted stock vested as of June 30, 2023 and December 31, 2022, respectively.

Employee Stock Purchase Plan

In June 2021, the Company's board of directors and stockholders approved the 2021 Employee Stock Purchase Plan (the "ESPP") which became effective upon the IPO. Pursuant to the ESPP, certain employees of the Company, excluding consultants and non-employee directors, are eligible to purchase common stock of the Company at a reduced rate during offering periods. The ESPP permits participants to purchase common stock using funds contributed through payroll deductions, subject to a calendar year limit of $25,000 and at a purchase price of 85% of the lower of the fair market value of the Company's common stock on the first trading day of the offering period or on the applicable purchase date, which will be the final trading day of the applicable purchase period. The ESPP has two annual purchase periods extending from June to November and December to May.

The Company recorded a minimal liability for ESPP in accrued liabilities as of June 30, 2023 and December 31, 2022. The Company issued 65,222 shares under the ESPP during the three and six months ended June 30, 2023. 207,137 shares were issued under the ESPP during the three and six months ended June 30, 2022.

Incentive Stock Options and Nonqualified Stock Options

Stock options issued under the 2020 Plan and 2021 Plan generally vest over a four-year period and expire ten years from the date of grant. Certain options provide for accelerated vesting if there is a change in control, as defined in the individual award agreements.

A summary of option activity under the 2020 Plan and the 2021 Plan during the six months ended June 30, 2023 is as follows:

	Number of Options	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2022	7,755,303	$ 8.47	8.67	$ 794
Options granted - 2021 Plan	2,996,400	$ 2.19		
Options exercised	(55,047)	$ 0.32		
Options cancelled	(1,691,166)	$ 7.77		
Outstanding as of June 30, 2023	9,005,490	$ 6.56	6.9	$ 1,467
Exercisable	3,602,188	$ 7.98	6.0	$ 348
Vested and expected to vest as of June 30, 2023	9,005,490	$ 6.56	6.9	$ 1,467

Aggregate intrinsic value represents the difference between the fair value of the underlying common stock and the exercise price as of June 30, 2023. The weighted-average grant date fair value of options granted during the three and six months ended June 30, 2023 was $2.60 and $1.54 per share, respectively. There were 55,047 stock options exercised during the three and six months ended June 30, 2023.

Early Exercise of Stock Options

The terms of the 2020 Plan permit the exercise of options granted prior to vesting, subject to required approvals. The unvested shares are subject to the repurchase right upon termination of employment at the original purchase price. The repurchase right lapses in 180 days after the termination of the employee's employment. Shares purchased by employees pursuant to the early exercise of stock options are not deemed, for accounting purposes, to be issued until those shares vest according to their respective vesting schedules. Cash received for early exercised stock options is recorded as other liabilities on the balance sheet and is reclassified to common stock and additional paid-in capital as such shares vest. During the three and six months ended June 30, 2023, the Company repurchased 163,526 and 190,468 shares, respectively, that were previously early exercised. The Company repurchased 50,713 shares that were previously early exercised during the three and six months ended June 30, 2022.

As of June 30, 2023 and December 31, 2022, 182,464 and 554,695 shares, respectively, remained subject to the right of repurchase as a result of the early exercised stock options. The remaining liability related to early exercised shares as of June 30, 2023 and December 31, 2022 was $0.1 million and $0.1 million, respectively, and was recorded within accrued expenses and other liabilities on the Company's condensed balance sheets.

Stock-Based Compensation Expense

The following table presents the components of stock-based compensation expense for the Company's stock-based awards for the periods presented (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	**2022**	**2023**	**2022**
Restricted stock awards and founders' common stock awards	$ 2	$ 2	$ 4	$ 4
ESPP	(14)	112	95	258
Stock options	2,857	3,246	6,009	6,440
Total stock-based compensation expense	$ 2,845	$ 3,360	$ 6,108	$ 6,702

The above stock-based compensation expense also includes the expenses of $0.3 million and $0.7 million related to stock options issued to non-employees during the three and six months ended June 30, 2023, respectively. There was $0.1 million in stock-based compensation expense for options issued to non-employees during the three and six months ended June 30, 2022.

The following table presents the classification of stock-based compensation expense for the Company's stock-based awards for the periods presented (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	**2022**	**2023**	**2022**
Research and development expenses	$ 747	$ 1,259	$ 1,867	$ 2,632
General and administrative expenses	2,098	2,101	4,241	4,070
Total stock-based compensation expense	$ 2,845	$ 3,360	$ 6,108	$ 6,702

As of June 30, 2023 and December 31, 2022 there was $20.8 million and $31.0 million of unrecognized stock-based compensation expense related to the employee and non-employee awards, which is expected to be recognized over a weighted-average period of 2.8 and 2.6 years, respectively.

11. Restructuring Activities

As a result of the Restructuring Plan discussed in Note 1, the Company eliminated approximately 71.2% of its workforce.

Employees affected by the Restructuring Plan obtained involuntary termination benefits that are provided pursuant to a one-time benefit arrangement. For employees who were notified of their termination in February 2023 and have no requirements to provide future service, the Company recognized the liability for the termination benefits in full at fair value in the current period. For employees who are required to render services beyond a minimum retention period to receive their one-time termination benefits, the Company is recognizing the termination benefits ratably over their future service periods. The service periods began in February 2023 and all will end at various dates through September 2023. The Company recorded charges during the six months ended June 30, 2023 of $3.3 million, which was included in restructuring and impairment costs in the condensed statements of operations and comprehensive loss.

The following table summarizes the Company's restructuring liability that is included in accrued expenses and other current liabilities in the accompanying condensed balance sheet:

	Six Months Ended June 30, 2023
Accrued employee termination benefits beginning balance	$ —
Employee termination benefits charges incurred during the period	3,345
Amounts paid or otherwise settled during the period	(2,941)
Accrued employee termination benefits as of June 30, 2023	$ 404

In addition, the board of directors determined that it was in the best interests of the Company and its stockholders to put in place arrangements designed to provide that the Company will have the continued dedication and commitment of those employees, including executives, determined to be key to the Company's planned go-forward operations. The Board approved, and management implemented, a retention program for certain employees staying with the Company which includes cash retention bonuses totaling $4.0 million for certain retained employees provided that they remain within the Company through the requisite service period of March 1, 2024. As a result, these cash retention bonuses are being accrued over the requisite service period, with $0.9 million and $1.2 million recognized during the three and six months ended June 30, 2023, respectively.

In June 2023, the Company committed to a plan to sell certain of its lab equipment associated with the Restructuring Plan. As of June 30, 2023, the Company had $2.7 million in assets on the condensed balance sheet meeting the criteria of held for sale. These assets are recognized at the lower of cost or fair value less cost to sell using market approach. The fair value of these assets are classified as Level 3 in the fair value hierarchy due to a mix of unobservable inputs utilized such as independent research in the market as well as actual quotes from market participants. During the three and six months ended June 30, 2023, the Company recorded an impairment charge, which was included in restructuring and impairment costs in the condensed statements of operations and comprehensive loss, of $1.1 million. Subsequent changes to the estimated selling price of assets held for sale are recorded as gains or losses to the condensed statements of operations and comprehensive loss wherein the recognition of subsequent gains is limited to the cumulative loss previously recognized. The remaining value of $1.6 million is recognized on the condensed balance sheet under the line item assets held for sale.

12. Net Loss Per Share Attributable to Common Stockholders

The following table sets forth the computation of basic and diluted net loss per share attributable to common stockholders, which excludes shares which are legally outstanding, but subject to repurchase by the Company (in thousands, except share and per share amounts):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	**2022**	**2023**	**2022**
Numerator:				
Net loss	$ (55,314)	$ (25,936)	$ (79,248)	$ (51,771)
Denominator:				
Weighted-average common shares outstanding	58,051,253	58,056,643	58,110,011	58,033,859
Less: weighted-average unvested restricted shares and shares subject to repurchase	(1,305,906)	(3,483,777)	(1,610,851)	(3,749,023)
Weighted-average shares used to compute basic and diluted net loss per share attributable to common stockholders	56,745,347	54,572,866	56,499,160	54,284,836
Net loss per share attributable to common stockholders — basic and diluted:	$ (0.97)	$ (0.48)	$ (1.40)	$ (0.95)

Anti-dilutive Outstanding Shares or Equivalents

The following outstanding options, unvested shares, and ESPP shares were excluded (as common stock equivalents) from the computation of diluted net loss per common share for the periods presented as their effect would have been anti-dilutive (in thousands):

	Three Months Ended June 30,		**Six Months Ended June 30,**	
	2023	**2022**	**2023**	**2022**
Options to purchase common stock	9,005,490	7,661,716	9,005,490	7,661,716
Common stock subject to vesting or repurchase	1,519,027	3,774,117	1,519,027	3,774,117
Employee Stock Purchase Plan shares	60,248	142,525	60,248	142,525
Total	10,584,765	11,578,358	10,584,765	11,578,358

13. Income Taxes

During the six months ended June 30, 2023 and 2022, the Company recorded a full valuation allowance on federal and state deferred tax assets since management does not forecast the Company to be in a taxable position in the near future.

14. Subsequent Events

Sale of Non-Genotoxic Targeted Conditioning Technology Assets

On August 1, 2023, the Company entered into an asset purchase agreement (the “APA”) with a third party pursuant to which the Company sold to the counterparty, concurrently with the execution of the APA, certain assets related to the Company’s non-genotoxic conditioning technology in exchange for upfront and contingent milestone payments totaling up to approximately $1.5 million in the aggregate and reimbursement of certain research and development amounts incurred prior to closing, as well as royalties on net sales by the acquirer of certain products incorporating the acquired technology, potential fees upon the completion of certain transactions by the acquirer, and reimbursement of certain research and development amounts incurred prior to closing of approximately $0.6 million.

License and Option to Acquire Nula-Cel Assets

On August 4, 2023, the Company entered into a license and option agreement (the “LOA”) with a third party pursuant to which the Company exclusively licensed to the counterparty, and granted the counterparty an option to acquire, certain intellectual property and materials related to the Company’s nulabeglogene autogedtemcel (nula-cel) program and related pre-clinical platform assets. Exercise of the option is contingent on the counterparty timely achieving a financing milestone, and all rights to the intellectual property and materials will revert to the Company if the milestone is not achieved or if the counterparty elects not to exercise the option. In return for this license and option, the Company received an equity interest in the counterparty representing 20% of all outstanding shares on a fully diluted basis.

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 in conjunction with our unaudited condensed financial statements and the related notes and other financial information included elsewhere in this Quarterly Report on Form 10-Q, and the financial statements and accompanying notes, as well as Management's Discussion and Analysis of Financial Condition and Results of Operations contained in our Annual Report on Form 10-K for the year ended December 31, 2022. Certain of the information contained in this discussion and analysis or set forth elsewhere in this Quarterly Report, including information with respect to plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the section entitled "Risk Factors," our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis. You should carefully read the section entitled "Risk Factors" to gain an understanding of the material and other risks that could cause actual results to differ materially from our forward-looking statements. Please also see the section entitled "Cautionary Note Regarding Forward-Looking Statements."

Overview

We are a clinical-stage, next-generation gene editing company. In January 2023, we announced a voluntary pause of our Phase 1/2 CEDAR study of nulabeglogene autogedtemcel (nula-cel), for sickle cell disease (SCD) due to a serious adverse event in the first patient dosed, which we concluded is likely related to study treatment. Nula-cel was being developed as a highly differentiated approach to treating SCD, with the potential to directly correct the mutation that causes SCD and restore normal adult hemoglobin (HgbA) expression.

In February 2023, we announced our decision to discontinue the development of nula-cel and initiate a process to explore strategic alternatives. As a result of this decision, we announced a corporate restructuring that resulted in an approximately 71.2% reduction in our workforce. We also disclosed our intention to continue research activities associated with our pre-clinical non-genotoxic conditioning program, with the goal of advancing toward one or more potential development candidates. As part of the corporate restructuring, we also elected not to utilize the portion of our facilities space subject to our lease agreement with Bayside Area Development for purposes of our own operations and intend to sublease the vacant space to recover a portion of the total cost. We will remain obligated for all rent payments until a sub-lessee or new tenant can be found.

In August 2023, we entered into a license and option agreement, pursuant to which we granted a third-party an option to acquire certain of our technology and intellectual property related to our nula-cel program and related pre-clinical platform assets. We also entered into an asset purchase agreement pursuant to which we transferred to another third-party our pre-clinical non-genotoxic conditioning program, including technology and intellectual property, while we continue to explore strategic alternatives.

We were incorporated in Ontario, Canada in June 2017 as Longbow Therapeutics Inc. and were reincorporated in the State of Delaware in October 2019. In February 2020, we changed our name to Integral Medicines, Inc. and in August 2020, we changed our name to Graphite Bio, Inc. Research and development of our initial technology ceased at the end of 2018 and we did not have any significant operations or any research and development activities in 2019. In March 2020, we identified new gene editing technology which we sought to further develop, and we licensed the related intellectual property rights from The Board of Trustees of the Leland Stanford Junior University (Stanford) in December 2020.

Since our inception in June 2017, we have devoted substantially all of our resources to performing research and development, enabling manufacturing activities in support of our product development efforts, hiring personnel, acquiring and developing our technology and product candidates, organizing and staffing our Company, performing business planning, establishing our intellectual property portfolio, raising capital and providing general and administrative support for these activities. We have had one product candidate that has an accepted IND. All of our other product candidates were in preclinical development, and we do not have any products approved for sale and have not generated any revenue from product sales. To date, we have funded our operations primarily with an aggregate of $197.7 million in aggregate gross proceeds from the sales of our redeemable convertible preferred stock and the issuance of convertible notes. In June and July 2021, we completed our initial public offering ("IPO") and issued 16,100,000 shares of our common stock for $17.00 a share with a total net proceeds of approximately $251.3 million, and total underwriting costs of $19.1 million and issuance costs of $3.2 million. We will continue to require additional capital to fund our operations for the foreseeable future and ensure we have adequate personnel, pay for accounting, audit, legal, and consulting services, and pay costs associated with maintaining compliance with Nasdaq listing rules and the requirements of the U.S. Securities and Exchange Commission ("SEC"), director and officer liability insurance and other expenses associated with operating as a public company. Accordingly, until such time as we can generate significant revenue from product sales, if ever, we expect to finance our cash needs through public or private equity or debt financings, and collaborations, strategic alliances and licensing arrangements with third parties.

We have incurred significant operating losses since inception. As of June 30, 2023, we had cash, cash equivalents and marketable securities of $246.7 million and an accumulated deficit of $321.7 million. We expect to continue to incur substantial losses for the foreseeable future, and our transition to profitability will depend upon successful development, approval and commercialization of our product candidates and upon achievement of sufficient revenues to support our cost structure. We do not expect to generate any revenue from commercial product sales unless and until we successfully complete development and obtain regulatory approval for one or more of our product candidates, which we do not expect to occur in the foreseeable future. We may never achieve profitability, and unless and until then, we will need to continue to raise additional capital. Based upon our current operating plan, we estimate that our cash, cash equivalents and investments in marketable securities as of June 30, 2023 will be sufficient to fund our operating expenses and capital expenditure requirements for at least the next 12 months. We expect to continue to incur significant expenses and operating losses for the foreseeable future, as we conduct limited research and development activities, seek regulatory approvals for our pipeline candidates, if any, manufacture drug product and drug supply, continue to operate as a public company, and maintain and expand our intellectual property portfolio.

We expect to continue to incur significant expenses in connection with our ongoing and planned activities, as we:

- advance any product candidates through preclinical studies and clinical trials;
- manufacture supplies for our preclinical studies and clinical trials;
- retain key personnel to continue our go-forward operations;
- operate as a public company;
- explore and execute on our strategic alternative process or a potential strategic transaction;
- implement and maintain operational, financial and management systems; and
- obtain, maintain, expand and protect our portfolio of intellectual property rights.

We rely and will continue to rely on third parties in the conduct of our preclinical studies and clinical trials and for manufacturing and supply of our product candidates. We have no internal manufacturing capabilities, and we may continue to rely on third parties for our preclinical and clinical trial materials, of which the main suppliers are single-source suppliers. Given our stage of development, we do not yet have a marketing or sales organization or commercial infrastructure. Accordingly, if we obtain regulatory approval for any of our product candidates, we also expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution.

Because of the numerous risks and uncertainties associated with product development, we are unable to predict the timing or amount of increased expenses or when or if we will be able to achieve or maintain profitability. Even if we are able to generate revenue from sales of any product for which we receive regulatory approval, we may not become profitable. If we fail to become profitable or are unable to sustain profitability on a continuing basis, we may be unable to continue our operations at planned levels and may be forced to reduce our operations.

Stanford Exclusive License Agreement and Option Agreement

In December 2020, we entered into an exclusive license agreement (the “License Agreement”), with The Board of Trustees of the Leland Stanford Junior University (Stanford), pursuant to which Stanford granted us a worldwide license to specified technology and patent rights to develop, manufacture and commercialize human prophylactic and therapeutic products. Other than with respect to specified, broadly applicable assays and procedures and subject to retained rights by Stanford, the license is exclusive with respect to human prophylactic and therapeutic products for the treatment of SCD, XSCID and beta thalassemia. The license is non-exclusive with respect to those broadly applicable assays and procedures and with respect to all human prophylactic and therapeutic products other than for the treatment of SCD, XSCID and beta thalassemia.

To date, pursuant to the License Agreement, we have paid an upfront license fee to Stanford of $50.0 thousand and issued to Stanford and its designees an aggregate of approximately 0.6 million shares of our common stock. The acquisition of the exclusive license, including patent rights and know-how, and clinical supplies was accounted for as an asset acquisition and as the acquired technology and inventories did not have an alternative use, the total consideration of $2.8 million was recorded as research and development expense in the statements of operations and comprehensive loss for the year ended December 31, 2020. We are obligated to pay Stanford an annual license maintenance fee on each anniversary of the effective date of the License Agreement. The annual license maintenance fee initially is $5.0 thousand and will increase to $50.0 thousand in three increments over the first seven anniversaries of the effective date of the License Agreement. After the first commercial sale of a product falling within the scope of the license (the “Licensed Product”), the annual license maintenance fee is $200.0 thousand.

In May 2021, we issued 640,861 shares of our common stock in connection with the License Agreement. Subsequently, in June 2021, related to the License Agreement, we repurchased 624,845 shares of our common stock from investors and founders.

We are required to share with Stanford a portion of any non-royalty income we receive from sublicensing the licensed patent rights or technology, subject to specified exclusions. With respect to sublicenses granted to products for the treatment of SCD, XSCID and beta thalassemia, the portion of sublicense income we must share with Stanford varies by indication and declines from between a mid-teen to a second quartile double-digit percentage prior to the filing of an IND to between a high single-digit to very low double-digit percentage upon achievement of a specified clinical milestone. With respect to sublicenses granted under the licensed technology rights and not licensed patent rights, the portion of sublicense income shared with Stanford declines from between a mid-single-digit and very low double-digit percentage prior to the filing of an IND to a low single-digit percentage after filing of an IND.

We are obligated to make payments to Stanford with respect to each Licensed Product of up to an aggregate of $12.8 million upon the achievement of certain development, regulatory and commercial milestones. Such amounts are payable only once upon the first occurrence of a particular milestone event with respect to each Licensed Product and only once with respect to each new indication covered by any of the Licensed Products.

We also are obligated to pay Stanford low single-digit royalties based on worldwide annual net sales of any Licensed Product, subject to specified reductions. We will be obligated to continue to pay royalties on a Licensed Product-by-Licensed Product and country-by-country basis, until the latest of (i) the expiration of the last valid claim under the licensed patents that covers the sale or manufacture of such Licensed Product in such country, (ii) the expiration of any period of regulatory exclusivity with respect to such Licensed Product in such country or (iii) the expiration of ten years after the first commercial sale of such Licensed Product in such country.

The term of the License Agreement expires on the later of (i) the expiration of the last patent or abandonment of the last patent application within the license patent rights or (ii) the expiration of all royalty terms with respect to Licensed Products. The License Agreement may be terminated by us at will or by Stanford if we remain in breach of the License Agreement following a cure period to remedy the breach.

We are required to use diligent efforts to manufacture, market and sell Licensed Products for the treatment of each of SCD, XSCID and beta thalassemia. In addition, we are required to achieve specified milestones by specified dates with respect to Licensed Products for the treatment of each of SCD, XSCID and beta thalassemia. If we fail to satisfy our diligence obligations, Stanford may terminate the License Agreement for our breach. For more details on the License Agreement, please see Note 6 of the Notes to Condensed Financial Statements.

In January 2021, we entered into an option agreement (the "First Option Agreement"), with Stanford, pursuant to which Stanford granted us the right to obtain a license to specified patent rights relating to human prophylactic and therapeutic products. We may exercise the option in whole or in part to obtain a license under one or more of the optioned patent rights.

Subject to our exercise of the option under the First Option Agreement and our execution of an amendment to the License Agreement that incorporates the optioned patent rights and any optioned technology, we have agreed to issue to Stanford 132,137 shares of our common stock and pay a license execution fee of $10.0 thousand.

The term of the First Option Agreement expires 18 months after its effective date, subject to our right to extend such expiration date by up to an additional one year upon notice to Stanford and by another additional one year upon the reasonable agreement of Stanford. The First Option Agreement will terminate if the License Agreement terminates. On June 23, 2022, we exercised the right to extend the term of the First Option Agreement for an additional year. As of June 30, 2023, we have not exercised the option and no fees have been paid under the First Option Agreement.

In April 2021, we entered into an option agreement (the "Second Option Agreement") with Stanford to negotiate the license for additional technologies from Stanford. Pursuant to the Second Option Agreement, we agreed to pay Stanford option fees in an aggregate amount of $30.0 thousand over the term of the option. On April 13, 2022, we entered into an amendment to the Second Option Agreement which extended the term for an additional year. As of June 30, 2023, we have not exercised the option and no fees have been paid under the Second Option Agreement.

LCGM Service Agreement

On August 30, 2021, we entered into a Master Manufacturing and Service Agreement with the Laboratory for Cell & Gene Medicine ("LCGM") at Stanford ("LCGM MSA"). Pursuant to the LCGM MSA, LCGM will conduct clinical manufacturing, release testing, and product release for nula-cel in our Phase 1/2 CEDAR clinical trial to treat SCD. During 2021, we entered into various SOWs under the LCGM MSA under which we received technology transfer and related services for HBB Beta-Globin Gene Variant for SCD, manufacturing engineer test runs, the exclusive use of a manufacturing suite at the LCGM facility, and Phase 1/2 CEDAR clinical development and manufacturing of the HBB Variant for SCD. During the three months ended June 30, 2023, we did not recognize any research and development expense in connection with the LCGM MSA. We recognized $1.1 million during the six months ended June 30, 2023. We recognized $1.3 million and $2.8 million during the three and six months ended June 30, 2022, respectively, in research and development expense in connection with the LCGM MSA. As of June 30, 2023, we do not expect to incur any additional expenses associated with the LCGM MSA.

IDT License Agreement

On June 7, 2021, we entered into a License Agreement (the "IDT License Agreement") with Integrated DNA Technologies, Inc. (IDT). Pursuant to the IDT License Agreement, IDT granted us and our affiliates a worldwide, non-exclusive, sublicensable license to research and develop products incorporating HiFi Cas9 protein variants for use in human therapeutic applications for SCD, XSCID and Gaucher disease (the "Field") and a worldwide, exclusive, sublicensable license to commercialize such products in the Field. We have also been granted the right to expand the licensed Field to include human therapeutic applications in the additional fields of beta thalassemia disorder and lysosomal storage disorders upon the payment of an exercise fee in the amount of $0.5 million per additional field or $1.0 million for both additional fields.

In consideration of the licenses and rights granted to us under the IDT License Agreement, we agreed to pay to IDT an upfront payment in the amount of $3.0 million and up to $5.3 million (or $8.8 million if we elect to expand the Field as described above to include both the beta thalassemia and lysosomal storage disorders fields) in total regulatory milestone payments. Each regulatory milestone payment is payable once on an indication-by-indication basis. In addition, we have agreed to pay IDT a low single-digit royalty on the net sales of products, subject to reductions in specified circumstances. The acquisition of the license was accounted for as an asset acquisition and as the acquired technology did not have an alternative use, the total consideration of $3.0 million was recorded as research and development expense in the statement of operations and comprehensive loss for the year ended December 31, 2021. During the six months ended June 30, 2023, we have not recognized any research and development expense in connection with the IDT License Agreement. There are no milestones probable as of June 30, 2023; therefore, no milestone payments have been recognized in the six months ended June 30, 2023.

The IDT License Agreement remains in effect on a country-by-country and product-by-product basis until the expiration of the royalty term for such product in such jurisdiction. We and IDT each have the right to terminate the IDT License Agreement for the other party's material breach of its obligations under the IDT License Agreement, subject to specified rights to cure. Additionally, we may terminate the IDT License Agreement for any reason upon written notice. As of June 30, 2023, we do not expect to incur any additional expenses associated with the IDT License Agreement.

Initial Public Offering

In June and July 2021, we completed an initial public offering of our common stock. As part of the IPO, we issued and sold 16,100,000 shares of our common stock at a public offering price of $17.00 per share. In June and July 2021, we received net proceeds of approximately $251.3 million from the IPO, after deducting underwriting discounts and commissions of $19.1 million and offering costs of approximately $3.2 million.

Components of Results of Operations

Operating Expenses

Research and Development

Research and development costs consist primarily of external and internal costs incurred for our research activities and the development of our gene editing platform and associated rights which we licensed in December 2020.

External costs include:

- costs incurred under agreements with third-party CROs, CMOs and other third parties that conduct preclinical and clinical activities on our behalf and manufacture our product candidates;
- costs associated with acquiring technology and intellectual property licenses that have no alternative future uses; and
- other costs associated with our research and development programs, including laboratory materials and supplies and consulting fees.

Internal costs include:

- employee-related costs, including salaries, benefits and stock-based compensation expense, for our research and development personnel; and
- facilities and other expenses incurred in connection with our research and development programs, including expenses for allocated rent and facilities maintenance, and depreciation and amortization.

Research and development costs are expensed as incurred. Since inception, we have not tracked our internal indirect costs and external research and development costs by program. The intellectual property we licensed in late 2020 is fundamental to our platform and we did not focus on any specific programs. In the future, we expect to track research and development costs on a program by program basis as we identify the specific programs and product candidates to develop.

During 2022 and 2021, we were eligible for a research and development tax credit. The tax incentive was available to us based on research and development activity within the United States and California during that year. These research and development tax incentives are recognized as a reduction to payroll tax expense when the right to receive has been attained and funds are collectible and are capped at $250.0 thousand per year.

The process of conducting preclinical research is costly and time-consuming. We are unable to determine the duration and completion costs of our research projects or if, when and to what extent they will lead to product candidates and enter into clinical research. Our future research and development costs may vary significantly based on factors such as:

- the scope, rate of progress, expense and results of our clinical trials and our discovery and preclinical development activities;
- the costs and timing of our CMC activities, including fulfilling GMP-related standards and compliance, and identifying and qualifying suppliers;
- per patient clinical trial costs;
- the number and duration of clinical trials required for approval of our product candidates;
- the number of sites included in our clinical trials;
- the countries in which the trials are conducted;
- delays in adding a sufficient number of trial sites and recruiting suitable patients to participate in our clinical trials;
- the number of patients that participate in the trials;
- patient drop-out or discontinuation rates;
- potential partial reimbursement from governmental agencies for our clinical activities;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of patient participation in the trials and follow-up;
- the cost and timing of manufacturing our product candidates;
- the phase of development of our product candidates;
- the efficacy and safety profile of our product candidates; the timing, receipt, and terms of any approvals from applicable regulatory authorities including the FDA and non-U.S. regulators;
- maintaining a continued acceptable safety profile of our product candidates following approval, if any, of our product candidates;
- significant and changing government regulation and regulatory guidance;
- changes in the standard of care on which a clinical development plan was based, which may require new or additional trials; and
- the extent to which we establish additional strategic collaborations or other arrangements.

General and Administrative Expenses

General and administrative expenses consist primarily of expenses related to employee-related costs, including salaries, benefits and stock-based compensation expense, for our executive, business development, finance and accounting, human resources and other administrative functions; legal services, including relating to intellectual property and corporate matters; accounting, auditing, consulting and tax services; insurance; and facility and other allocated costs not otherwise included in research and development expenses. We expect to continue to incur significant general and administrative expenses for the foreseeable future as we implement our restructuring plan, pursue potential strategic alternatives and conduct our operations generally. We also expect to continue to incur significant expenses associated with being a public company, including costs related to accounting, audit, legal, regulatory, and tax-related services associated with maintaining compliance with applicable Nasdaq and SEC requirements; director and officer insurance costs; and investor and public relations costs.

Other Income (Expense), Net

Other income (expense), net primarily consists of amounts realized from interest income from the investments in marketable securities.

Results of Operations

Three Months Ended June 30, 2023 and 2022

The following table summarizes our statements of operations and comprehensive loss for the respective periods (in thousands):

	Three Months Ended June 30,			
	2023		2022	
Operating expenses:				
Research and development	$	13,508	$	17,777
General and administrative		7,455		8,999
Restructuring and impairment costs		37,196		—
Total operating expenses		58,159		26,776
Loss from operations		(58,159)		(26,776)
Other income (expense), net:				
Interest income, net		2,845		840
Loss on disposal of assets		-		—
Total other income (expense), net		2,845		840
Net loss	$	(55,314)	$	(25,936)
Unrealized gain (loss) on investments		198		(724)
Comprehensive loss	$	(55,116)	$	(26,660)

Operating Expenses

Research and Development Expenses

Research and development expenses were $13.5 million for the three months ended June 30, 2023 compared to $17.8 million for the three months ended June 30, 2022, a decrease of $4.3 million. The decrease in research and development expenses was primarily attributable to a decrease of $2.6 million in clinical trial related activities and contract manufacturing activities for our clinical trials and drug supply, a decrease of $1.6 million in personnel costs, and a decrease of $0.1 million in other research and development costs primarily related to facilities costs, lease expense and service agreements.

General and Administrative Expenses

General and administrative expenses were $7.5 million for the three months ended June 30, 2023 compared to $9.0 million for the three months ended June 30, 2022, a decrease of $1.5 million. The decrease in general and administrative expenses was comprised of a decrease of $2.0 million in consulting and personnel-related costs, including associated stock-based compensation expense. This was partially offset by a $0.5 million increase in facility costs, lease expense, and depreciation and amortization expense due to an increase in fixed assets.

Restructuring and Impairment Costs

Restructuring and impairment costs for the three months ended June 30, 2023 consisted primarily of costs incurred related to the corporate restructuring, including $35.0 million of non-cash impairment related to the decision not to utilize the Bayside Area Development lease, $1.1 million related to the impairment of assets held for sale for planned disposition of certain lab equipment, $0.8 million related to severance expense incurred as part of the Restructuring Plan, and $0.3 million related to the loss on disposal of property and equipment.

Other Income (Expense), Net

The other income (expense), net for the three months ended June 30, 2023 and 2022 was comprised of interest income.

Six Months Ended June 30, 2023 and 2022

The following table summarizes our statements of operations and comprehensive loss for the respective periods (in thousands):

	Six Months Ended June 30,	
	2023	**2022**
Operating expenses:		
Research and development	$ 29,752	$ 36,023
General and administrative	15,078	16,711
Restructuring and impairment costs	39,779	-
Total operating expenses	84,609	52,734
Loss from operations	(84,609)	(52,734)
Other income (expense), net:		
Interest income, net	5,432	963
Loss on disposal of assets	(71)	-
Total other income (expense), net	5,361	963
Net loss	$ (79,248)	$ (51,771)
Unrealized gain (loss) on investments	777	(1,033)
Comprehensive loss	$ (78,471)	$ (52,804)

Operating Expenses

Research and Development Expenses

Research and development expenses were $29.8 million for the six months ended June 30, 2023 compared to $36.0 million for the six months ended June 30, 2022, a decrease of $6.2 million. The decrease in research and development expenses was primarily attributable to a decrease of $5.0 million in clinical trial related activities and contract manufacturing activities for our clinical trials and drug supply and a $1.4 million decrease in personnel costs. This was partially offset by a $0.2 million increase in other research and development costs primarily related to facilities costs, lease expense and service agreements.

General and Administrative Expenses

General and administrative expenses were $15.1 million for the six months ended June 30, 2023 compared to $16.7 million for the six months ended June 30, 2022, a decrease of $1.6 million. The decrease in general and administrative expenses was comprised of a decrease of $2.6 million in professional service fees and expenses. This was partially offset by an increase of $0.6 million in facilities costs, lease expense, and depreciation and amortization expense due to an increase in fixed assets and $0.4 million personnel-related costs, including associated stock-based compensation expense.

Restructuring and Impairment Costs

Restructuring and impairment costs for the three months ended June 30, 2023 consisted primarily of costs incurred related to the corporate restructuring, including $35.0 million of non-cash impairment related to the decision not to utilize the Bayside Area Development lease, $3.4 million related to severance expense incurred as part of the Restructuring Plan, $1.1 million related to the impairment of assets held for sale for planned disposition of certain lab equipment, and $0.2 million related to the loss on disposal of property and equipment.

Other Income (Expense), Net

The other income (expense), net for the six months ended June 30, 2023 and 2022 was comprised of interest income and loss on disposal of assets.

Liquidity and Capital Resources

We have incurred losses since inception and have incurred negative cash flows from operations from inception through June 30, 2023. As of June 30, 2023, we had $246.7 million of cash, cash equivalents and marketable securities and our accumulated deficit was

$321.7 million. In June and July 2021, we raised net proceeds of $251.3 million in our IPO, pursuant to which we sold an aggregate of 16,100,000 shares of common stock.

Prior to our IPO, we funded our operations primarily from the sale of redeemable convertible preferred stock and issuance of convertible promissory notes.

On July 21, 2022, we filed the 2022 Shelf with the SEC in relation to the registration of up to an aggregate offering price of $300.0 million of common stock, preferred stock, debt securities, warrants and units or any combination thereof. We also simultaneously entered into a Sales Agreement to provide for the offering, issuance and sale by us of up to an aggregate of $75.0 million of our common stock from time to time in “at-the-market” offerings under the 2022 Shelf and subject to the limitations thereof. We will pay to the Sales Agent cash commissions of up to 3.0 percent of the gross proceeds of sales of common stock under the Sales Agreement. We have not issued any shares or received any proceeds from any offerings under the 2022 Shelf through August 14, 2023.

Future Funding Requirements

Our primary uses of cash are to fund our operations, which consist primarily of research and development expenditures related to our programs and, to a lesser extent, general and administrative expenditures. We anticipate that we will continue to incur significant expenses for the foreseeable future as we continue to advance our product candidates, expand our corporate infrastructure, including the costs associated with being a public company, further our research and development initiatives for our product candidates, scale our laboratory and manufacturing operations, and incur marketing costs associated with potential commercialization. We are subject to all of the risks typically related to the development of new drug candidates, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. We anticipate that we will need substantial additional funding in connection with our continuing operations.

Based upon our current operating plan, we estimate that our existing cash, cash equivalents and investments in marketable securities as of the date of the filing of this Form 10-Q, will be sufficient to fund our operating expenses and capital expenditure requirements into the fourth quarter of 2024. Until we can generate sufficient revenues from the commercialization of our product candidates or from collaboration agreements with third parties, if ever, we expect to finance our future cash needs through public or private equity or debt financings, collaborations and other strategic alliances and licensing arrangements, or any combination of these approaches. The sale of equity or convertible debt securities may result in dilution to our stockholders and, in the case of preferred equity securities or convertible debt, those securities could provide for rights, preferences or privileges senior to those of our common stock. Debt financings may subject us to covenant limitations or restrictions on our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. Our ability to raise additional funds may be adversely impacted by negative global economic conditions and any disruptions to and volatility in the credit and financial markets in the United States and worldwide that have resulted and may result from inflationary pressures or other factors. There can be no assurance that we will be successful in acquiring additional funding at levels sufficient to fund our operations or on terms favorable or acceptable to us. If we are unable to obtain adequate financing when needed or on terms favorable or acceptable to us, we may be forced to delay, reduce the scope of or eliminate one or more of our research and development programs.

Our future capital requirements will depend on many factors, including:

- the timing, scope, progress, results and costs of research and development, discovery, preclinical and non-clinical studies and clinical trials for our current and future product candidates;
- the number, scope and duration of clinical trials required for regulatory approval of our current and future product candidates;
- the outcome, timing and cost of seeking and obtaining regulatory approvals from the FDA and comparable foreign regulatory authorities for our product candidates, including any requirement to conduct more studies or generate additional data beyond that which we currently expect would be required to support a marketing application;
- the cost of manufacturing clinical and commercial supplies of our current and future product candidates;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our product candidates for which we receive marketing approval;
- 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 revenue, if any, received from commercial sales of any product candidates for which we may receive marketing approval;
- our ability to establish a commercially viable pricing structure and obtain approval for coverage and adequate reimbursement from third-party and government payers;

- the costs to establish, maintain, expand, enforce and defend the scope of our intellectual property portfolio, including the amount and timing of any payments we may be required to make, or that we may receive, in connection with licensing, preparing, filing, prosecuting, defending and enforcing our patents or other intellectual property rights;
- expenses needed to attract, hire and retain skilled personnel; and
- the costs of operating as a public company.

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

Cash Flows

The following table summarizes our sources and uses of cash for the periods presented (in thousands):

	Six Months Ended June 30,	
	2023	2022
Net cash used in operating activities	$ (34,729)	$ (43,334)
Net cash provided by (used in) investing activities	115,389	(258,883)
Net cash provided by financing activities	116	412
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 80,776	$ (301,805)

Cash Used in Operating Activities

Net cash used in operating activities was $34.7 million for the six months ended June 30, 2023, which was primarily attributable to our net loss of $79.2 million, adjusted for net non-cash charges of $44.1 million and net changes in operating assets and liabilities of $0.4 million. Non-cash charges included $36.1 million of impairment expense, $6.1 million in stock-based compensation expense, and $2.8 million in non-cash lease expense, which is partially offset by $0.9 million in depreciation and amortization expense.

Net cash used in operating activities was $43.4 million for the six months ended June 30, 2022, which was primarily attributable to our net loss of $51.8 million and net changes in operating assets and liabilities of $2.3 million, adjusted for net non-cash charges of $10.7 million. Non-cash charges included $6.7 million in stock-based compensation expense, $2.5 million in non-cash lease expense, and $1.1 million in depreciation and amortization expense.

Cash Used in Investing Activities

Net cash provided by investing activities was $115.4 million for the six months ended June 30, 2023, which was primarily attributable to cash received from the maturity of investments of $149.2 million and proceeds from sale of property and equipment of $0.3 million. This was partially offset by cash used the investment in current and non-current marketable securities of $28.1 million and the purchases of lab equipment for use at our headquarters of $6.0 million.

Net cash used in investing activities was $258.9 million for the six months ended June 30, 2022, which was primarily attributable to the investment in current and non-current marketable securities of $248.0 million and $6.0 million, respectively, and the purchases of lab equipment for use at our headquarters of $4.7 million.

Cash Provided by Financing Activities

Net cash provided by financing activities for the six months ended June 30, 2023 was $0.1 million for the six months ended June 30, 2023, which consisted primarily of proceeds from issuance of common stock related to the employee stock purchase plan. This was partially offset by repurchases of unvested early exercised stock options and RSAs.

Net cash provided by financing activities was $0.4 million for the six months ended June 30, 2022, which consisted primarily of proceeds from issuance of common stock related to the employee stock purchase plan.

Recently Adopted Accounting Pronouncements

For information on new accounting standards, see Note 2 to our financial statements included in Part I in this Quarterly Report.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, and expenses and the disclosure of contingent assets and liabilities in our financial statements. On an ongoing basis, we evaluate our estimates and judgments, including but not limited to those related to accrued research and development costs, the fair value of redeemable convertible preferred stock, investments in marketable securities, and common stock and stock-based compensation expense, the valuation of deferred tax assets, and uncertain income tax positions. We base our estimates on historical experience, known trends and events and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

Other than the disclosures below, there have been no significant changes in our critical accounting policies and estimates as compared to the critical accounting policies and estimates disclosed in Management's Discussion and Analysis of Financial Condition and Operations included in our Annual Report on Form 10-K for the year ended December 31, 2022.

Leases

ASU No. 2016-02, Leases (Topic 842), or ASC 842, requires the recognition of the right-of-use assets and related operating and finance lease liabilities on the balance sheet. For contracts entered into on or after the effective date, at the inception of a contract, we assess whether the contract is, or contains, a lease. The assessment is based on: (1) whether the contract involves the use of a distinct identified asset, (2) whether we obtain the right to substantially all the economic benefit from the use of the asset throughout the period, and (3) whether we have the right to direct the use of the asset. At inception of a lease, we allocate the consideration in the contract to each lease component based on its relative stand-alone price to determine the lease payments.

Leases are classified as either finance leases or operating leases. A lease is classified as a finance lease if any one of the following criteria are met: the lease transfers ownership of the asset by the end of the lease term, the lease contains an option to purchase the asset that is reasonably certain to be exercised, the lease term is for a major part of the remaining useful life of the asset or the present value of the lease payments equals or exceeds substantially all of the fair value of the asset. A lease is classified as an operating lease if it does not meet any of these criteria.

For all leases at the lease commencement date, a right-of-use asset and a lease liability are recognized. The right-of-use asset represents the right to use the leased asset for the lease term. The lease liability represents the present value of the lease payments under the lease.

The right-of-use asset is initially measured at cost, which primarily comprises the initial amount of the lease liability, plus any initial direct costs incurred, if any, less any lease incentives received. All right-of-use assets are reviewed for impairment. The lease liability is initially measured at the present value of the lease payments, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, our secured incremental borrowing rate for the same term as the underlying lease. For real estate leases and other operating leases, we use our secured incremental borrowing rate. For finance leases, we use the rate implicit in the lease or our secured incremental borrowing rate if the implicit lease rate cannot be determined.

Lease payments included in the measurement of the lease liability comprise the following: the fixed noncancelable lease payments, payments for optional renewal periods where it is reasonably certain the renewal period will be exercised, and payments for early termination options unless it is reasonably certain the lease will not be terminated early.

Lease cost for operating leases consists of the lease payments plus any initial direct costs, primarily brokerage commissions and is recognized on a straight-line basis over the lease term. Included in lease cost are any variable lease payments incurred in the period that are not included in the initial lease liability and lease payments incurred in the period for any leases with an initial term of 12 months or less. Lease cost for finance leases consists of the amortization of the right-of-use asset on a straight-line basis over the lease term and interest expense determined on an amortized cost basis. The lease payments are allocated between a reduction of the lease liability and interest expense.

Leasehold improvements are not unique and are retained by the lessor at the end of the lease. However, we are the accounting owner of the leasehold improvements in the case of a space designed to be suitable for our specific real estate needs if we are also responsible for cost overruns.

We elected to make an accounting policy of the short-term leases exemption to leases with a remaining lease term of less than 12 months as at the date of initial adoption.

Impairment of Long-Lived Assets

We assess the impairment of long-lived assets whenever events or changes in business circumstances indicate that the carrying amounts of the assets may not be fully recoverable. In the case of property and equipment and right-of-use assets for our leases, we determine whether there has been an impairment by comparing the carrying value of the asset to the anticipated undiscounted net cash flows associated with the asset. If such cash flows are less than the carrying value, we write down the asset to its fair value, which may be measured as anticipated discounted net cash flows associated with the asset.

As discussed in Note 11, in connection with our Restructuring Plan, we have made the decision not to utilize the Bayside Area Development premises (the "Bayside lease"). We are currently seeking to sublease the vacated premises while still maintaining sufficient office and laboratory space for our normal operations. As a result, we reviewed the Bayside lease for impairment as of April 2023 when we received access to the premises and will subsequently review at each reporting date or as facts and circumstances changed. As part of our impairment evaluation of the Bayside lease, we separately compared the estimated undiscounted income to the net book value of the related long-term assets, which include right-of-use assets and certain property and equipment, primarily leasehold improvements (collectively, sublease assets). We estimated sublease income using market participant assumptions, including the length of time to enter into a sublease and sublease payments, which we evaluated using sublease negotiations or agreements where applicable, current real estate trends, and market conditions. If such income exceeded the net book value of the related assets, we did not record an impairment charge. Otherwise, we recorded an impairment charge by reducing the net book value of the assets to their estimated fair value, which we determined by discounting the estimated sublease cash flows using the estimated borrowing rate of a market participant subtenant. Determination of these key assumptions is complex and highly judgmental.

For certain impairment charges, we used the terms of active sublease negotiations or agreements to estimate sublease income. Our estimate of future cash flows on the remaining floors, including the time to enter into a sublease and the terms of sublease payments, including estimated free rent periods, are based on current real estate trends and market conditions. Accordingly, if our estimates for the time to enter the sublease and estimated free rent periods were longer (shorter), the impairment charge would be higher (lower), and if our estimates for the rental rates were lower (higher), the impairment charge would be higher (lower). Given the current office lease market rental conditions in the Bay Area, our estimates are subject to significant uncertainty. The ultimate amount of sublease income may be significantly lower or higher than the amounts used to record our impairment charges, and we may record additional impairment charges in future periods as our estimates change or when we enter into sublease negotiations or execute a sublease agreement.

Emerging Growth Company and Smaller Reporting Company Status

We are an emerging growth company, as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay the adoption of new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. Other exemptions and reduced reporting requirements under the JOBS Act for emerging growth companies include presentation of only two years of audited financial statements in a registration statement for an initial public offering, an exemption from the requirement to provide an auditor's report on internal controls over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, as amended, an exemption from any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation and less extensive disclosure about our executive compensation arrangements. We have elected to use the extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that (i) we are no longer an emerging growth company or (ii) we affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act.

However, as described in Note 2 to our condensed financial statements included elsewhere in this Quarterly Report, we early adopted certain accounting standards, as the JOBS Act does not preclude an emerging growth company from adopting a new or revised accounting standard earlier than the time that such standard applies to private companies to the extent early adoption is permitted. As a result, our financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earliest of (i) the last day of our first fiscal year in which we have total annual gross revenues of $1.23 billion or more, (ii) December 31, 2026, (iii) the date on which we are deemed to be a "large accelerated filer," under the rules of the SEC, which means the market value of equity securities that is held by non-affiliates exceeds $700.0 million as of the prior June 30th and (iv) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

If we are a "smaller reporting company" at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Under SEC rules and regulations, as a smaller reporting company, we are not required to provide the information required by this item.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer, who serves as our principal executive officer and our principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act of 1934, as amended (the "Exchange Act")) as of the end of the period covered by this Quarterly Report. Based upon that evaluation, our Chief Executive Officer has concluded that, as of June 30, 2023, our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed by us in the reports that 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 to provide reasonable assurance that such information is accumulated and communicated to our management, including our Chief Executive Officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter ended June 30, 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

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

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

We are not party to any material legal proceedings at this time. From time to time, we may become involved in various legal proceedings that arise in the ordinary course of our business.

Item 1A. Risk Factors.

This Form 10-Q contains forward-looking information based on our current expectations. Because our business is subject to many risks and our actual results may differ materially from any forward-looking statements made by or on behalf of us, the discussion of our business and operations in this Form 10-Q should be read together with the risk factors contained in Item 1A of our Annual Report on Form 10-K for year ended December 31, 2022 filed with the SEC on March 20, 2023 (as amended, the "Annual Report"), which describe various risks and uncertainties to which we are or may become subject. These risks and uncertainties have the potential to affect our business, financial condition, results of operations, cash flows, strategies, or prospects in a material and adverse manner. There are no material changes from the risk factors as previously disclosed in our Annual Report.

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

(a)**Recent Sales of Unregistered Equity Securities**

None.

(b)**Use of Proceeds from the Initial Public Offering of Common Stock**

On June 29, 2021, we completed our IPO and issued 14,000,000 shares of our common stock at an initial offering price of $17.00 per share. On July 2, 2021, we issued 2,100,000 shares of our common stock to the underwriters of the IPO pursuant to the exercise of their option to purchase additional shares at a price of $17.00 per share less underwriting discounts and commissions. We received net proceeds from the IPO of approximately $251.3 million, after deducting underwriting discounts and commissions of approximately $19.1 million and offering expenses of approximately $3.2 million. None of the expenses associated with the IPO were paid to directors, officers, persons owning 10% or more of any class of equity securities, or to their associates. Morgan Stanley & Co. LLC, BofA Securities, Inc., Cowen and Company, LLC and SVB Leerink, LLC acted as book-running managers for the IPO.

Shares of our common stock began trading on The Nasdaq Global Market on June 25, 2021. The offer and sale of the shares were registered under the Securities Act on a registration statement on Form S-1 (Registration No. 333-256838), which was declared effective on June 24, 2021.

As of June 30, 2023, we have used approximately $166.8 million of the net proceeds received in the IPO. Cash used since the IPO is described elsewhere in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of our periodic reports filed with the SEC. There has been no material change in the planned use of proceeds from our IPO as described in the registration statement on Form S-1. We invested the funds received in cash equivalents and other marketable securities in accordance with our investment policy.

(c)**Issuer Purchases of Equity Securities**

The following table provides stock repurchase activity during each of the months of the three months ended June 30, 2023:

	Total number of shares purchased[(1)]	Average price paid per share	Total number of shares purchased as part of publicly announced plans or programs	Maximum number of shares that may yet be purchased under the plans or programs
April 1, 2023 - April 30, 2023	159,935	$ 0.28	—	—
May 1, 2023 - May 31, 2023	—	—	—	—
June 1, 2023 - June 30, 2023	165,879	0.03	—	—
Total	325,814	$ 0.16	—	—

(1)Represents shares of unvested common stock that were repurchased by us from former employees upon termination of employment in accordance with the terms of the employees' stock option agreements. We purchased the shares from the former employees at the respective original exercise prices.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation, as currently in effect (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-40532) filed on June 30, 2021).
3.2	Amended and Restated Bylaws, as currently in effect (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-40532) filed on June 30, 2021)
4.1	Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-256838) filed on June 11, 2021)
4.2	Amended and Restated Investors' Rights Agreement by and among the Registrant and certain of its stockholders, dated March 11, 2021 (incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-256838) filed on June 4, 2021)
31	Certification of Principal Executive Officer and Principal Financial Officer 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.
32*	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* This certification will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent specifically incorporated by reference into 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.

GRAPHITE BIO, INC.

Date: August 14, 2023

By: /s/ Josh Lehrer, M.D.

Josh Lehrer, M.D.
President and Chief Executive Officer
(Principal Executive Officer and Principal Accounting and Financial Officer)

Exhibit 31

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, Josh Lehrer, M.D., certify that:

1.I have reviewed this Quarterly Report on Form 10-Q of Graphite 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(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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 14, 2023	By:	/s/ Josh Lehrer, M.D
		Josh Lehrer, M.D.
		(Principal Executive Officer and Principal Accounting and Financial Officer)

Exhibit 32

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

In connection with the Quarterly Report of Graphite Bio, Inc. (the “Company”) on Form 10-Q for the period ending June 30, 2023 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(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 14, 2023	By:	/s/ Josh Lehrer, M.D.
		Josh Lehrer, M.D.
		(Principal Executive Officer and Principal Accounting and Financial Officer)