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

FORM 10-Q

☒ QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended June 30, 2022

☐ 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: 001-40443

Singular Genomics Systems, Inc.
(Exact name of Registrant as specified in its charter)

Delaware	**81-2948451**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**

3010 Science Park Road
San Diego, California 92121
(858) 333-7830
(Registrant's address of principal executive offices and telephone number, including area code)

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

Title of each class	**Trading Symbol**	**Name of each exchange on which registered**
Common Stock, $0.0001 par value per share	OMIC	Nasdaq Global Select Market

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

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

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

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

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

There were 71,193,292 shares of common stock, $0.0001 par value, outstanding as of July 29, 2022.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This filing contains forward-looking statements. All statements other than statements of historical facts contained in this report, including statements regarding our future results of operations and financial position, future revenue, business strategy, prospects, products, research and development costs, timing and likelihood of success, as well as plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that are in some cases beyond our control and may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

The words "anticipate," "believe," contemplate," "continue," "could," "estimate," "expect," "intend," "may," "might," "plan," "potential," "predict," "project," "should," "target," "will" or "would" or the negative of these terms or other similar expressions are intended to identify forward-looking statements. Forward-looking statements contained in this report include, but are not limited to, statements about:

- estimates of our addressable market, market growth, future revenue, expenses, capital requirements and our needs for additional financing;
- our ability to timely and successfully complete the development and implement our commercialization plan for the G4 and planned PX;
- the implementation of our business model and strategic plans for the G4 and planned PX;
- our expectations regarding the rate and degree of market acceptance of the G4 and planned PX;
- our ability to compete with competitive companies and technologies in our industry;
- our ability to manage and grow our business and commercialize the G4 and planned PX;
- our ability to develop and commercialize new products and product enhancements;
- the impact of the COVID-19 pandemic on our business;
- our ability to establish and maintain intellectual property protection for our products or avoid or defend claims of infringement;
- our ability to fulfill our contractual commitments;
- the performance of third-party manufacturers and suppliers;
- our ability to effectively manufacture our products;
- the potential effects of government regulation;
- our ability to hire and retain key personnel and to manage our future growth effectively;
- our ability to obtain additional financing on favorable terms to us or at all;
- our expectations regarding use of proceeds from our initial public offering;
- the impact of local, regional, national and international economic conditions and events;
- our expectations about market trends; and
- our expectations regarding the period during which we will qualify as an emerging growth company under the JOBS Act.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in the section titled "Risk Factors" elsewhere in this report. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this report may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely on forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, advancements, discoveries, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this report to conform these statements to actual results or to changes in our expectations.

You should read this report and the documents that we reference in this report and have filed with the SEC as exhibits to this report with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Summary of Material Risks Associated with Our Business

Our business is subject to a number of risks that if realized could materially affect our business, prospects, operating results and financial condition. These risks are discussed more fully in the "Risk Factors" section of this Quarterly Report on Form 10-Q. These risks include the following:

- Our limited operating history makes it difficult to evaluate our future prospects and the risks and challenges we may encounter.
- We have incurred significant losses since inception, we expect to incur significant losses in the future and we may not be able to generate sufficient revenue to achieve and maintain profitability.
- We are a pre-revenue life science technology company and have very limited history in developing and commercializing our products or technology, which makes it difficult to evaluate our prospects and predict our future performance.
- The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer.
- If we are sued for infringing, misappropriating or otherwise violating intellectual property rights of third parties, such litigation could be costly and time-consuming and could prevent or delay us from developing or commercializing our products.
- We could have disputes with contractual counterparties regarding our or their performance under those contracts, we could be unable to fulfill such contractual commitments, or our contractual obligations may exceed our current expectations.
- If our products fail to achieve early customer and scientific acceptance, we may not be able to achieve broader market acceptance for our products, and our revenues and prospects may be harmed.
- We expect to be highly dependent upon revenue generated from the sale of the G4, and any delay or failure by us to successfully develop and commercialize the G4 could have a substantial adverse effect on our business and results of operations.
- The COVID-19 pandemic and efforts to reduce its spread have adversely impacted and may materially and adversely impact our business and operations in the future.
- Our business will depend significantly on research and development spending by academic institutions and other research institutions, and any reduction in spending could limit demand for our products and adversely affect our business, results of operations, financial condition and prospects.
- Our operating results may fluctuate significantly in the future, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide.
- We have only launched one commercial product, the G4, and we may not be able to successfully commercially launch our planned PX or other products as planned.
- The G4 is sold as a research-use-only product; changes in the regulatory landscape could affect the market for such a product.
- If we are unable to obtain and maintain sufficient intellectual property protection for our products and technology, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our products may be impaired.
- We may require substantial additional funding, which may not be available to us on acceptable terms, or at all, and, if not available, may require us to delay, scale back or cease our product development programs or operations.

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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

Singular Genomics Systems, Inc.
Condensed Balance Sheets
(In thousands, except share and par value amounts)

	June 30, 2022	December 31, 2021
	(Unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	$ 153,115	$ 201,049
Short-term investments	134,376	138,174
Inventory	12,216	3,011
Prepaid expenses and other current assets	6,243	5,526
Total current assets	305,950	347,760
Right-of-use lease assets	48,245	-
Property and equipment, net	9,303	6,072
Restricted cash	1,734	687
Other noncurrent assets	1,177	1,129
Total assets	$ 366,409	$ 355,648
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 4,017	$ 2,348
Accrued expenses	4,056	4,278
Lease liabilities, current	5,239	-
Other current liabilities	-	118
Total current liabilities	13,312	6,744
Lease liabilities, noncurrent	44,398	-
Long-term debt, net of issuance costs	9,983	9,904
Other noncurrent liabilities	1,155	2,827
Total liabilities	68,848	19,475
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Series A Common Stock Equivalent Convertible Preferred Stock, $0.0001 par value; 7,000 shares authorized, 2,500 and 0 shares issued and outstanding at June 30, 2022 and December 31, 2021, respectively	-	-
Common stock, $0.0001 par value; 400,000,000 shares authorized, 71,065,869 and 72,438,742 shares outstanding at June 30, 2022 and December 31, 2021, respectively	7	7
Additional paid-in capital	496,451	488,200
Accumulated other comprehensive loss	(1,013)	(138)
Accumulated deficit	(197,884)	(151,896)
Total stockholders' equity	297,561	336,173
Total liabilities and stockholders' equity	$ 366,409	$ 355,648

See accompanying notes to these unaudited condensed financial statements.

Singular Genomics Systems, Inc.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Operating expenses:				
Research and development	$ 12,061	$ 7,682	$ 22,707	$ 14,289
Selling, general and administrative	12,182	6,201	23,556	9,855
Total operating expenses	24,243	13,883	46,263	24,144
Loss from operations	(24,243)	(13,883)	(46,263)	(24,144)
Other income (expense):				
Interest and other income	428	413	584	543
Interest expense	(167)	(232)	(309)	(420)
Change in fair value of convertible promissory notes	-	(23,799)	-	(35,199)
Change in fair value of warrant liability	-	22	-	(2,180)
Net loss	$ (23,982)	$ (37,479)	$ (45,988)	$ (61,400)
Net loss per share:				
Basic and diluted net loss per share	$ (0.34)	$ (1.18)	$ (0.65)	$ (2.83)
Weighted-average shares used to compute basic and diluted net loss per share	70,779,326	31,628,921	70,893,059	21,696,142

See accompanying notes to these unaudited condensed financial statements.

Singular Genomics Systems, Inc.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	**2021**	**2022**	**2021**
Net loss	$ (23,982)	$ (37,479)	$ (45,988)	$ (61,400)
Other comprehensive loss:				
Unrealized (loss) gain on available-for-sale securities	(246)	49	(875)	-
Comprehensive loss	$ (24,228)	$ (37,430)	$ (46,863)	$ (61,400)

See accompanying notes to these unaudited condensed financial statements.

Singular Genomics Systems, Inc.

Condensed Statements of Stockholders' Equity

(Unaudited)

(In thousands, except share data)

	Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance at December 31, 2021	-	$ -	72,438,742	$ 7	$ 488,200	$ (138)	$ (151,896)	$ 336,173
Exchange of common stock for Series A Common Stock Equivalent	2,500	-	(2,500,000)	-	-	-	-	-
Vesting of common stock issued for early exercise of stock options	-	-	505,322	-	344	-	-	344
Issuance of common stock in connection with exercise of stock options	-	-	65,399	-	34	-	-	34
Stock-based compensation	-	-	-	-	3,566	-	-	3,566
Unrealized loss on available- for-sale marketable securities	-	-	-	-	-	(629)	-	(629)
Net loss	-	-					(22,006)	(22,006)
Balance at March 31, 2022	2,500	$ -	70,509,463	$ 7	$ 492,144	$ (767)	$ (173,902)	$ 317,482
Vesting of common stock issued for early exercise of stock options	-	-	219,743	-	151	-	-	151
Issuance of common stock in connection with exercise of stock options	-	-	162,644	-	62	-	-	62
Issuance of common stock in connection with Employee Stock Purchase Program	-	-	174,019	-	489	-	-	489
Stock-based compensation	-	-	-	-	3,605	-	-	3,605
Unrealized loss on available- for-sale marketable securities	-	-	-	-	-	(246)	-	(246)
Net loss	-	-	-	-	-	-	(23,982)	(23,982)
Balance at June 30, 2022	2,500	$ -	71,065,869	$ 7	$ 496,451	$ (1,013)	$ (197,884)	$ 297,561

See accompanying notes to these unaudited condensed financial statements.

Singular Genomics Systems, Inc.

Condensed Statements of Preferred Stock and Stockholders' Equity (Deficit)

(Unaudited)

(In thousands, except share data)

	Series Seed Convertible Preferred Stock		Series A Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders' (Deficit) / Equity
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Gain (Loss)	Deficit	
Balance at December 31, 2020	6,520,790	$ 4,486	12,932,429	$ 19,908	19,373,169	$ 44,790	10,816,937	$ 1	$ 1,552	$ 17	$ (53,125)	$ (51,555)
Vesting of common stock issued for early exercise of stock options	-	-	-	-	-	-	151,343	-	92	-	-	92
Issuance of common stock in connection with exercise of stock options	-	-	-	-	-	-	1,855,904	-	995	-	-	995
Stock-based compensation	-	-	-	-	-	-	-	-	1,096	-	-	1,096
Unrealized loss on available- for-sale marketable securities	-	-	-	-	-	-	-	-	-	(49)	-	(49)
Net loss	-	-	-	-	-	-					(23,921)	(23,921)
Balance at March 31, 2021	6,520,790	$ 4,486	12,932,429	$ 19,908	19,373,169	$ 44,790	12,824,184	$ 1	$ 3,735	$ (32)	$ (77,046)	$ (73,342)
Conversion of preferred stock into common stock	(6,520,790)	(4,486)	(12,932,429)	(19,908)	(19,373,169)	(44,790)	38,826,388	4	69,180	-	-	69,184
Conversion of the convertible promissory notes into common stock	-	-	-	-	-	-	7,531,777	1	165,698	-	-	165,699
Issuance of common stock upon initial public offering, net of issuance costs	-	-	-	-	-	-	11,730,000	1	237,198	-	-	237,199
Cashless exercise of common stock warrant	-	-	-	-	-	-	117,088	-	2,631			2,631
Vesting of common stock issued for early exercise of stock options	-	-	-	-	-	-	378,146	-	230	-	-	230
Issuance of common stock in connection with exercise of stock options	-	-	-	-	-	-	118,744	-	66	-	-	66
Stock-based compensation	-	-	-	-	-	-	-	-	2,341	-	-	2,341
Unrealized gain on available- for-sale marketable securities	-	-	-	-	-	-	-	-	-	49	-	49
Net loss	-	-	-	-	-	-	-	-	-	-	(37,479)	(37,479)
Balance at June 30, 2021	-	$ -	-	$ -	-	$ -	71,526,327	$ 7	$ 481,079	$ 17	$ (114,525)	$ 366,578

See accompanying notes to these unaudited condensed financial statements.

Singular Genomics Systems, Inc.

Condensed Statements of Cash Flows
(Unaudited)
(In thousands)

	Six Months Ended June 30, 2022	Six Months Ended June 30, 2021
Operating activities		
Net loss	$ (45,988)	$ (61,400)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	1,071	466
Stock-based compensation	7,171	3,437
Change in fair value of convertible promissory notes	-	35,199
Change in fair value of warrant liability	-	2,180
Amortization of premium on short-term investments	1,565	540
Amortization of right-of-use lease assets	1,573	-
Accretion of debt issuance costs	79	160
Changes in operating assets and liabilities:		
Inventory	(9,309)	-
Prepaid expenses and other current assets	(1,049)	(5,903)
Other noncurrent assets	(921)	(909)
Accounts payable	1,307	766
Accrued expenses	(222)	217
Other current liabilities	-	(122)
Lease liabilities	(668)	-
Other noncurrent liabilities	-	343
Net cash used in operating activities	(45,391)	(25,026)
Investing activities		
Purchases of short-term investments	(65,139)	(122,655)
Sales of short-term investments	15,311	17,045
Maturities of short-term investments	51,285	5,256
Purchases of property and equipment	(3,077)	(1,473)
Net cash used in investing activities	(1,620)	(101,827)
Financing activities		
Proceeds from initial public offering, net of issuance costs	-	238,644
Proceeds from issuance of common stock under equity incentive plans, net of repurchases	(365)	3,494
Proceeds from issuance of common stock under employee stock purchase plan	489	-
Proceeds from issuance of convertible promissory notes	-	130,500
Net cash provided by financing activities	124	372,638
Net (decrease) increase in cash and cash equivalents and restricted cash	(46,887)	245,785
Cash and cash equivalents and restricted cash, beginning of year	201,736	12,170
Cash and cash equivalents and restricted cash, end of period	$ 154,849	$ 257,955
Supplemental disclosure for cash activities		
Interest paid	$ 222	$ 260
Supplemental disclosure for non-cash activities		
Initial lease liability recognized upon adoption of ASC 842	$ 7,074	$ -
Initial lease liability recognized upon lease commencements during the period	$ 43,231	$ -
Vesting of restricted stock	$ 495	$ 322
Deferred offering costs in accrued expenses	$ -	$ 1,445
Conversion of preferred stock to common stock	$ -	$ 69,184
Conversion of convertible promissory notes to common stock	$ -	$ 165,699
Inventory transferred to property and equipment	$ 104	$ -
Noncurrent deposit transferred to property and equipment	$ 759	$ -
Purchase of property and equipment included in accounts payable	$ 362	$ 60

See accompanying notes to these unaudited condensed financial statements.

Singular Genomics Systems, Inc.
Notes to Condensed Financial Statements
(Unaudited)

1. Business

Description of Business

Singular Genomics Systems, Inc. (the "Company") is a life science technology company that develops next-generation sequencing and multiomics technologies. The commercially available G4 Sequencing Platform is a powerful, highly versatile benchtop genomic sequencer designed to produce fast and accurate results. In development, the PX system leverages the Company's proprietary sequencing technology, applying it as an in-situ readout to look at RNA and proteins in single cells and tissue. With these products, the Company's mission is to empower researchers and clinicians to advance science and medicine.

The Company was incorporated in the state of Delaware in June 2016 and has its principal operations in San Diego, California.

Initial Public Offering

On June 1, 2021, the Company closed its initial public offering ("IPO") in which it sold 11,730,000 shares of common stock (which included 1,530,000 shares that were sold pursuant to the full exercise of the IPO underwriters' option to purchase additional shares) at a public offering price of $22.00 per share. The Company received net proceeds of approximately $237.2 million after deducting offering costs, underwriting discounts and commissions of $20.9 million.

Concurrent with the closing of the IPO:

- 38,826,388 outstanding shares of convertible preferred stock converted into an equivalent number of shares of common stock;
- outstanding principal and interest amount of convertible promissory notes (the "2021 Convertible Notes") converted into 7,531,777 shares of common stock; and
- a warrant to purchase 129,156 shares of convertible preferred stock (the "SVB Warrant") was automatically adjusted to become a warrant to purchase an equivalent number of shares of common stock.

Liquidity and Capital Resources

The Company has incurred net losses since inception and, as of June 30, 2022 and December 31, 2021, had an accumulated deficit of $197.9 million and $151.9 million, respectively. The Company has a limited operating history, and the revenue and income potential of the Company's business are unproven. From incorporation in June 2016 through June 30, 2022, substantially all of the Company's operations have been funded by the sales of equity securities and issuances of debt. As of June 30, 2022, the Company had cash, cash equivalents and short-term investments of $287.5 million. The Company believes that its cash, cash equivalents and short-term investments as of June 30, 2022 are sufficient to fund its operations for at least 12 months from the issuance date of the accompanying unaudited condensed financial statements.

2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Use of Estimates

The accompanying unaudited condensed financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP") for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, certain information and disclosures required by GAAP for annual financial statements have been omitted. In the opinion of management, all adjustments, consisting of normal recurring adjustments considered necessary for fair presentation, have been included. Interim financial results are not necessarily indicative of results anticipated for the full year.

The preparation of the Company's unaudited condensed financial statements requires management to make estimates and assumptions that impact the reported amounts of assets, liabilities and expenses and the disclosure of contingent assets and liabilities in the Company's unaudited condensed financial statements and accompanying notes. Although these estimates are based on the Company's knowledge of current events and actions it may undertake in the future, actual results may significantly differ from these estimates and assumptions. For the year ended December 31, 2021, significant estimates and assumptions include the fair value of the 2021 Convertible Notes, the fair value of the liability for the SVB Warrant, the fair value of the Company's preferred and common stock and stock-based compensation. After December 31, 2021, significant estimates and assumptions include stock-based compensation and the value of lease liabilities and right-of-use lease assets.

Summary of Significant Accounting Policies

During the six months ended June 30, 2022, other than the policies described below, there were no changes to the Company's significant accounting policies as described in Note 2 to the audited financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

Cash, Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the balance sheets (in thousands):

	June 30, 2022	December 31, 2021
Cash and cash equivalents	$ 153,115	$ 201,049
Restricted cash	1,734	687
Total	$ 154,849	$ 201,736

Short-term Investments

Short-term investments primarily consisted of corporate debt securities, asset-backed securities and treasury securities. The Company's investments in securities are classified as current as they are available for use in current operations. The following tables summarize the short-term investments held at June 30, 2022 and December 31, 2021 (in thousands):

	June 30, 2022		
	Amortized Cost	Gross Unrealized Losses	Estimated Fair Value
U.S. treasury securities	$ 6,497	$ (1)	$ 6,496
Asset-backed securities	12,552	(35)	12,517
Corporate debt securities	116,340	(977)	115,363
Total	$ 135,389	$ (1,013)	$ 134,376

	December 31, 2021		
	Amortized Cost	Gross Unrealized Losses	Estimated Fair Value
Asset-backed securities	$ 21,172	$ (25)	$ 21,147
Corporate debt securities	117,140	(113)	117,027
Total	$ 138,312	$ (138)	$ 138,174

The following table summarizes the estimated fair value of contractual maturities of available-for-sale securities held at June 30, 2022 and December 31, 2021 (in thousands):

	June 30, 2022	December 31, 2021
Due within one year	$ 112,416	$ 94,085
After one but within five years	21,960	44,089
Total	$ 134,376	$ 138,174

The Company determined there was no other-than-temporary impairment of any of its investments.

Inventory

Inventory includes raw materials, which are goods to be consumed directly or indirectly in production, work in process, which are goods in the course of production, and finished goods, which are goods awaiting sale. Inventory is recorded at the lower of cost or net realizable value. Costs are based on standard costs that are adjusted regularly to reflect current conditions so that at the balance-sheet date standard costs reasonably approximate costs under a first-in, first-out basis. Standard costs include acquisition and production costs. Raw materials include inventories that may be used in research and development activities, and such items are expensed as consumed or capitalized as property and equipment and depreciated.

Inventory in the prior year's financial statements have been reclassified to conform to the current presentation on the condensed balance sheets and condensed statements of cash flows. No subtotals in the prior year financial statements were impacted as a result.

Leases

The Company adopted Accounting Standards Codification ("ASC") Topic 842, Leases ("ASC 842"), effective January 1, 2022. ASC 842 requires the Company to recognize on the balance sheet lease liabilities and corresponding right-of-use ("ROU") lease assets for its operating leases where the Company is the lessee. The initial impact of the adoption is discussed below in the section titled "Recent Accounting Pronouncements—Adopted."

The Company determines if an arrangement is or contains a lease at contract inception. Lease liabilities represent the Company's obligation to make payments under its operating leases. ROU lease assets represent the Company's right to use assets under its operating leases. The Company determines the value of lease liabilities and ROU lease assets on a lease-by-lease basis. A lease liability is recognized at the commencement date of an operating lease based on the present value of the future lease payments over the expected lease term. A corresponding ROU lease asset is recognized at the commencement date of an operating lease based on the value of the lease liability, adjusted for any lease incentives received, any initial direct costs incurred and any lease payments made at or before the lease commencement date. The Company made a policy election to not recognize lease liabilities and ROU lease assets for operating leases with an expected lease term of twelve months or less.

The Company calculates the present value of lease payments using the discount rate implicit in the lease, unless that rate cannot be readily determined. In that case, the Company uses its incremental borrowing rate based on information available at the date of lease commencement. The incremental borrowing rate is the estimated rate of interest that the Company would pay to borrow, on a collateralized basis, an amount equal to the lease payments over the expected lease term.

After lease commencement, the Company measures its operating leases as follows: (i) the lease liability based on the present value of the remaining lease payments using the incremental borrowing rate determined at lease commencement; and (ii) the ROU lease asset based on the remeasured lease liability, adjusted for any unamortized lease incentives received, any unamortized initial direct costs and the cumulative difference between lease expense and amounts paid under the lease. Lease expense is recognized on a straight-line basis over the expected lease term. Any lease incentives received and any initial direct costs are amortized on a straight-line basis over the expected lease term. Variable lease payments such as those related to property taxes, insurance and common area maintenance are recognized as expense when incurred.

Revenue Recognition

The Company expects to recognize revenue from sales of the G4, related consumable flow cell kits and services. Although the Company commenced shipping the G4 in the second quarter of 2022, the Company will not recognize revenue from shipped instruments until the applicable acceptance criteria have been met.

The process of revenue recognition involves five steps: (1) identifying the contract with a customer; (2) determining the performance obligations in the contract; (3) determining the transaction price; (4) allocating the transaction price to the performance obligations based on standalone selling prices; and (5) recognizing revenue when or as the performance obligations are satisfied.

Identifying the Contract—Contracts are agreements with the Company's customers that create enforceable rights and obligations. In some cases, the Company may account for multiple contracts as one contract.

Determining Performance Obligations—Performance obligations are promises to transfer goods or services to a customer that are distinct. A performance obligation is considered distinct from other obligations in a contract when it is separately identified in the contract and provides a benefit to the customer either on its own or together with other resources that are readily available to the customer. The Company's distinct performance obligations primarily consist of the delivery and installation of the G4, delivery of consumables and providing related support services.

Determining the Transaction Price—The transaction price is the amount of consideration the Company expects to be entitled from the customer in exchange for the promised goods or services and is generally fixed and stated in the contract with the customer.

Allocating the Transaction Price to Each Performance Obligation—The Company allocates the transaction price to each performance obligation based on the Company's estimate of each performance obligation's standalone selling price. Until the Company has sufficient volume of historical sales data for each performance obligation, the Company determines the standalone selling price using observable prices when available and the adjusted market approach, which is primarily based on prices set by management, adjusted for applicable discounts.

Recognizing Revenue—The allocated transaction price for each performance obligation is recognized as revenue as the Company satisfies each performance obligation. In instances where right of payment or transfer of title is contingent on the customer's acceptance of the product, revenue is not recognized until the acceptance criteria have been met.

Recent Accounting Pronouncements—Adopted

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, *Leases* ("ASU 2016-02"), codified as ASC 842. ASC 842 requires the Company to recognize on the balance sheet lease liabilities and corresponding ROU lease assets for its operating leases where the Company is the lessee. The Company adopted this standard effective January 1, 2021 using the modified retrospective method by applying the new standard to all leases existing as of January 1, 2022 and not restating any prior comparative periods. The Company elected the practical expedients to carry forward its historical lease classification, not reassess whether any expired or existing contracts are or contain leases and not reassess initial direct costs for existing leases. On January 1, 2022, the Company recorded operating lease liabilities of $7.1 million, ROU lease assets of $6.4 million, and derecognized deferred rent of $0.7 million. The additional disclosures required by the standard have been included in the section above titled "Leases" and in Note 9. Prior comparative periods have not been adjusted and continue to be reported under ASC 840.

Recent Accounting Pronouncements—Not Yet Adopted

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments–Credit Losses: Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"), which amends the impairment model by requiring entities to use a forward-looking approach based on expected losses to estimate credit losses on certain types of financial instruments, including trade receivables and available-for-sale debt securities. ASU 2016-13 is effective for the Company's annual periods beginning after December 15, 2022, with early adoption permitted. The Company is currently evaluating the impact that the adoption of this guidance will have on its financial statements and related disclosures.

3. Fair Value Measurements

For accounting purposes, fair value is defined as an exit price representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs such as quoted prices in active markets.

Level 2: Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly.

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

When quoted market prices are available in active markets, the fair value of assets and liabilities is estimated within Level 1 of the valuation hierarchy. If quoted prices are not available, then fair values are estimated by using pricing models, quoted prices of assets and liabilities with similar characteristics, or discounted cash flows, within Level 2 of the valuation hierarchy. In cases where Level 1 or Level 2 inputs are not available, the fair values are estimated by using inputs within Level 3 of the hierarchy.

None of the Company's assets or liabilities are recorded at fair value on a recurring basis other than cash, cash equivalents and short-term investments. No transfers between levels occurred during the periods presented. The fair value of short-term investments is based on market prices quoted on the last day of the fiscal period or other observable market inputs.

The following tables summarize the Company's assets measured at fair value on a recurring basis as of June 30, 2022 and December 31, 2021 (in thousands):

	June 30, 2022			
	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	$ 32,354	$ -	$ -	$ 32,354
Money market funds	120,761	-	-	120,761
U.S. treasury securities	6,496			6,496
Asset-backed securities	-	12,517	-	12,517
Corporate debt securities	-	115,363	-	115,363
Total	$ 159,611	$ 127,880	$ -	$ 287,491

	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	$ 26,037	$ -	$ -	$ 26,037
Money market funds	175,012	-	-	175,012
Asset-backed securities	-	21,147	-	21,147
Corporate debt securities	-	117,027	-	117,027
Total	$ 201,049	$ 138,174	$ -	$ 339,223

4. Inventory

Inventory consisted of the following (in thousands):

	June 30, 2022	December 31 2021
Raw materials	$ 8,700	$ 2,565
Work in process	3,275	446
Finished goods	241	-
Total inventory	$ 12,216	$ 3,011

5. Prepaid Expenses and Other Current Assets

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

	June 30, 2022	December 31 2021
Prepaid expenses	$ 4,804	$ 3,715
Interest receivable	953	1,050
Current deposits	486	761
Total prepaid expenses and other current assets	$ 6,243	$ 5,526

6. Property and Equipment, Net

Property and equipment, net, consisted of the following (in thousands):

	Useful Life	June 30, 2022	December 31, 2021
Equipment	5 years	$ 6,090	$ 4,433
Computers and software	3 years	2,619	2,136
Leasehold improvements	14 years or less	2,033	1,041
Furniture and fixtures	5 years or less	1,819	75
Construction in progress	N/A	-	574
Total property and equipment, gross		12,561	8,259
Less: accumulated depreciation		(3,258)	(2,187)
Total property and equipment, net		$ 9,303	$ 6,072

7. Accrued Expenses

Accrued expenses consisted of the following (in thousands):

	June 30, 2022	December 31, 2021
Accrued compensation and other employee benefits	$ 2,894	$ 3,516
Accrued professional services	284	200
Accrued research and development expenses	93	41
Accrued other expenses	785	521
Total accrued expenses	$ 4,056	$ 4,278

8. Long-term Debt

Silicon Valley Bank Loan

In November 2019, the Company entered into a loan and security agreement with Silicon Valley Bank ("SVB") pursuant to which SVB agreed to lend to the Company up to $15.0 million in a series of term loans (the "2019 SVB Loan"). Contemporaneously, the Company borrowed $2.5 million in the first of three draw-downs available under the 2019 SVB Loan. In March 2020, the Company borrowed an additional $7.5 million as a second draw. The 2019 SVB Loan was to mature on September 1, 2023 and bore interest at an annual rate equal to the greater of (i) 0.65% above the prime rate or (ii) 5.90%. Payment on the 2019 SVB Loan was for interest only through September 30, 2021. In addition, a final payment equal to the original principal amount of each advance multiplied by 5.50% was to be due on the maturity date. In connection with the 2019 SVB Loan, SVB entered into the SVB Warrant agreement with the Company to purchase shares of Series B convertible preferred stock at an exercise price of $2.3228 per share (see section titled "SVB Warrant" below).

On September 30, 2021, the Company refinanced its 2019 SVB Loan. In connection with the refinancing, the Company entered into an Amended and Restated Loan and Security Agreement (the "Amended Agreement" or "2021 SVB Loan", together with the 2019 SVB Loan, the "SVB Loans") with SVB. The Amended Agreement provides for term loans in an aggregate principal amount of up to $35.5 million to be delivered in three tranches. The tranches consist of: (i) a term loan advance to the Company in an aggregate principal amount of $10.5 million on the loan closing date (the "First Tranche"); (ii) an additional term loan advance available to the Company through September 30, 2022 in an aggregate principal amount of $15.0 million; and (iii) subject to SVB's approval, a right of the Company to request that SVB make an additional term loan advance in an aggregate principal amount of $10.0 million. The proceeds from the First Tranche were used to repay in full the existing indebtedness under the 2019 SVB Loan. The 2021 SVB Loan matures on September 1, 2026 and bears interest at an annual rate equal to the greater of (i) 0.75% plus the prime rate as reported in *The Wall Street Journal* and (ii) 4.00%. As of June 30, 2022, the SVB Loan bears interest at an annual rate of 5.50%. The 2021 SVB Loan has an initial interest-only period of 36 months. In addition, a final payment (the "Final Payment Fee") equal to the original principal amount of each advance multiplied by 4.00% will be due on the maturity date. The Final Payment Fee is recorded in other noncurrent liabilities on the balance sheet. As of June 30, 2022, the SVB Loan is recorded as noncurrent.

The Amended Agreement was accounted for as a debt modification, rather than an extinguishment, based on a comparison of the present value of the cash flows under the terms of the debt immediately before and after the amendment, which resulted in a change of such cash flows of less than 10%. Unamortized debt issuance costs as of the date of modification and incremental issuance costs incurred in connection with the Amended Agreement will be amortized to interest expense using the effective interest method over the repayment term.

As of June 30, 2022 and December 31, 2021, the debt issuance costs related to the SVB Loans were $0.5 million and $0.6 million, respectively. Debt issuance costs include the initial fair value of the SVB Warrant. The debt issuance costs are amortized to interest expense over the term of the loan using the effective interest method.

The SVB Loans and unamortized discount balances as of June 30, 2022 and December 31, 2021 are shown below (in thousands):

	June 30, 2022	December 31, 2021
Long-term debt	$ 10,500	$ 10,500
Less: issuance costs	(517)	(596)
Total long-term debt, net of issuance costs	$ 9,983	$ 9,904

Future minimum payments of outstanding principal and interest under the 2021 SVB Loan are as follows:

As of June 30, 2022	
2022 (six months remaining)	$ 245
2023	586
2024	2,325
2025	5,604
2026 and thereafter	4,038
Total future minimum payments	12,798
Less: interest, Final Payment fee	(2,297)
Long-term debt	10,500
Less: issuance costs	(517)
Long-term debt, net of issuance costs	$ 9,983

The Company is subject to customary affirmative and restrictive covenants under the Amended Agreement. The Company's obligations under the Amended Agreement are secured by a first priority security interest in substantially all of the Company's current and future assets, other than intellectual property. The Company has agreed not to encumber its intellectual property assets, except as permitted by the Amended Agreement.

The Amended Agreement provides for events of default customary for term loan facilities of this type, including but not limited to: non-payment; breaches or defaults in the performance of covenants or representations and warranties; bankruptcy and other insolvency events of the Company; and the occurrence of a material adverse change as defined in the Amended Agreement. After the occurrence of an event of default, SVB may, among other remedies, accelerate payment of all obligations.

As of June 30, 2022 and December 31, 2021, the Company was in compliance with all covenants under the Amended Agreement and there had been no events of default.

SVB Warrant

In November 2019, simultaneously with the first draw-down under its 2019 SVB Loan, SVB entered into a warrant agreement with the Company to purchase 32,289 shares of Series B convertible preferred stock of the Company at an exercise price of $2.3228 per share (as amended, the "SVB Warrant"). In March 2020, in connection with the Company's second draw-down under the 2019 SVB Loan, the SVB Warrant was amended to increase the number of shares of Series B convertible preferred stock of the Company by 96,867, to a total of 129,156 shares. In connection with the completion of the Company's IPO, in accordance with the original terms the warrant instrument, the SVB Warrant was automatically adjusted into a warrant to purchase an equivalent number of shares of common stock. In June 2021, after the IPO, SVB net exercised the SVB Warrant into 117,088 shares of common stock of the Company, and the SVB Warrant is no longer outstanding as of June 30, 2022.

The fair value of the SVB Warrant liability was remeasured at each financial reporting period with any changes in fair value recognized as other income (expense) in the statements of operations. The fair value for the warrant liability for the SVB Warrant was based on the Black-Scholes option pricing valuation model using significant inputs not observable in the market and was thus classified within Level 3 of the fair value hierarchy. The change in fair value of the warrant for the six months ended June 30, 2022 and 2021 was $0 and $2.2 million, respectively, and recorded as "Change in fair value of warrant liability" in the statements of operations. When, in connection with the IPO, the SVB Warrant was automatically adjusted into a warrant to purchase an equivalent number of shares of common stock, the warrant liability was reclassified from current liabilities to equity as the warrant met the definition of an equity instrument. Additionally, at that time, the Company recorded the final valuation of the warrant liability for the SVB Warrant. The assumptions used in determining the fair value of the SVB Warrant liability are described in Note 3 to the audited financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

2021 Convertible Notes

In February 2021, the Company sold and issued approximately $130.5 million aggregate principal of 2021 Convertible Notes in a private placement transaction. Of this amount, $48.5 million was to certain investors affiliated with members of the Company's board of directors. The 2021 Convertible Notes accrued 6% interest per annum. The Company elected as of the issuance date to account for the 2021 Convertible Notes at fair value. Management believes that the fair value option better reflected the underlying economics of the 2021 Convertible Notes, which contained multiple embedded derivatives. Under the fair value election, changes in fair value are reported as "Change in fair value of convertible promissory notes" in the statements of operations in each reporting period after the issuance through the conversion of the 2021 Convertible Notes. The Company measured the fair value of the 2021 Convertible Notes using the probability weighted "as-converted" plus Black-Scholes option pricing model based on inputs such as the probability of IPO vs. non-IPO scenarios, fair value of the common stock price, discount yield, risk-free rate, equity volatility, expected term, number of converted shares and price negotiation adjustment for the calibration. In connection with the IPO, the 2021 Convertible Notes converted into 7,531,777 shares of the Company's common stock. Based on the terms of the agreement, the 2021 Convertible Notes converted at a 20% discount to the public offering price in the IPO. At the time of the conversion, the Company recorded a final fair value adjustment of the 2021 Convertible Notes using the Company's common stock price at the IPO. The assumptions used in determining the fair value of the 2021 Convertible Notes are described in Note 3 to the audited financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

9. Commitments and Contingencies

Columbia License Agreement

In 2016, the Company entered into an Exclusive License Agreement (the "License Agreement") with The Trustees of Columbia University ("Columbia"). Under the License Agreement, the Company acquired the exclusive right to use certain patents, materials and information. The License Agreement includes a number of diligence obligations that requires the Company to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products (as defined in the License Agreement) by certain dates. Under the License Agreement, the Company pays an annual license fee that increases each year, until it reaches a low six-digit fee for the fifth year, and for each subsequent year, for so long as the License Agreement remains in force. The license fee was immaterial for all periods presented. For any products within the scope of the License Agreement that the Company commercializes, the Company is required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single-digit royalty rates on net sales of Other Products. The Company can credit the yearly annual license fee against any yearly royalty fees payable to Columbia. Additionally, if the Company receives any income in connection with any sublicenses, the Company must pay Columbia a high single-digit percentage of that income. Finally, the License Agreement provides for payments to Columbia based on the Company's achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement. During the six months ended June 30, 2022, the Company paid $0.1 million to Columbia pursuant to the terms of the License Agreement.

Operating Leases

Overview of Operating Leases

In November 2017, the Company entered into a non-cancelable operating lease in La Jolla, California for its prior headquarters, which expired in May 2022 upon commencement of the New HQ Lease (defined below). The lease included certain rent escalations and additional charges for common area maintenance and other costs. The Company gained access to the leased space and began recognizing rent expense under this lease in February 2018.

In November 2019, the Company entered into a lease agreement for office space in San Diego, California (the "3033 Lease"). The Company gained access to the leased space and began recognizing rent expense under this lease in May 2020. The Company has since amended the 3033 Lease to extend the lease and expand the existing premises for certain rent escalations. The term of the 3033 Lease will end 30 days following the Commencement Date of the OAS Lease (defined below).

In December 2019, the Company entered into a 5-year lease agreement for additional office space in San Diego, California (the "SV Lease"). The lease includes certain rent escalations and additional charges for common area maintenance and other costs. The Company gained access to the leased space and began recognizing rent expense under this lease in January 2020.

In June 2020, the Company entered into a lease agreement with ARE-SD Region No. 27, LLC (the "Landlord") for new office and laboratory space in San Diego, California ("New HQ Lease"). The New HQ Lease term ends at the same time the OAS Lease term ends (defined below). The Landlord shall make available to the Company for use within 12 months after the commencement date a tenant improvement allowance ("TI Allowance"), which the Company will repay to the Landlord as additional rent over the base term and shall accrue interest at a rate of 8% per annum. Upon commencement, the contractual base rent will be charged, subject to partial rent abatement, annual base rent adjustments, the Company's share of operating expenses and additional rent for the TI Allowance actually disbursed by the Landlord. The Company gained access to the New HQ Lease space and began recognizing rent expense under this lease in April 2022.

In April 2021, the Company entered into a 62-month lease agreement for additional office and manufacturing space in San Diego, California (the "MR Lease"). The lease includes certain rent escalations and additional charges for common area maintenance and other costs. The Company gained access to the leased space in June 2021 and began recognizing rent expense under this lease at that time.

In January 2022, the Company entered into a Lease Agreement (the "OAS Lease") with an affiliate of Alexandria Real Estate Equities, Inc. ("ARE") to lease two buildings ("Building 3" and "Building 4") to be constructed in connection with One Alexandria Square in La Jolla, California. The two buildings are comprised of office and manufacturing space and are intended to serve as the Company's future headquarters. The term of the OAS Lease will commence when ARE's work for Building 3 is substantially complete, which is expected to be November 1, 2024 (the "Commencement Date"). The Company's obligation to pay rent for Building 3 will begin approximately seven months following the Commencement Date. The Company's obligation to pay rent for Building 4 will begin 12 months following the Commencement Date, subject to the substantial completion of ARE's work on Building 4. The Company has an option to accelerate the construction and delivery of Building 4 to be the same date as the Commencement Date for Building 3 and will receive 12 months of base rent abatement on Building 4 if it exercises this option. The initial term of the OAS Lease is 144 months following the Commencement Date. The Company has the one-time option to extend the term of the OAS Lease by 60 months upon prior notice to ARE. The annual base rent under the OAS Lease is initially based on $64.80 per square foot per year, or approximately $7.3 million per year for Building 3 and $6.0 million per year for Building 4, subject to annual increases of 3% and certain other adjustments, and includes tenant improvement and warm shell allowances. Maximum tenant improvement and warm shell allowances total approximately $33 million. The Company will also pay for an estimated $24 million of certain tenant improvements plus 7% interest per year amortized in equal monthly payments over the term of the OAS Lease. At the time of entering into the OAS Lease, the Company paid ARE $1.1 million as prepayment for rent and, as a security deposit, provided ARE with a $1.1 million standby letter of credit.

Accounting for Operating Leases

On January 1, 2022, the Company adopted ASC 842 (see Note 2). As of January 1, 2022, the remaining weighted-average lease term was 2.9 years and the weighted-average incremental borrowing rate used to determine the operating lease liabilities was 3.6%. Cash payments included in the measurement of lease liabilities totaled $7.5 million. As of June 30, 2022, the remaining weighted-average lease term was 12.9 years and the weighted-average incremental borrowing rate used to determine the operating lease liabilities was 9.0%. Cash payments included in the measurement of lease liabilities totaled $89.7 million.

During the six months ended June 30, 2022, the Company incurred $3.4 million of lease costs, of which $0.1 million is related to the Company's short-term leases and $0.9 million is related to variable lease payments, which are primarily comprised of common area maintenance and $2.4 million related to straight-line operating lease cost. The Company recorded straight-line operating lease costs of $0.8 million for the six months ended June 30, 2021.

As of June 30, 2022, future minimum payments under the Company's non-cancelable operating leases that have commenced are as follows (in thousands):

2022 (six months remaining)	$	2,699
2023		6,693
2024		7,909
2025		5,572
2026 and thereafter		66,815
Future non-cancelable minimum lease payments		89,688
Less: discount		(40,051)
Total lease liabilities		49,637
Less: current portion		5,239
Lease liabilities, noncurrent	$	44,398

The total undiscounted future minimum lease payments associated with the OAS Lease are approximately $179.0 million and are not included in the table above. The Company did not recognize lease liabilities or corresponding ROU lease assets for the OAS Lease as its lease term had not yet commenced as of June 30, 2022.

Future minimum payments under all of the Company's non-cancelable operating leases, including those that have not yet commenced, are as follows:

2022 (six months remaining)	$	2,699
2023		6,693
2024		7,909
2025		10,914
2026 and thereafter		240,324
Total	$	268,539

Indemnification

As permitted under Delaware law and in accordance with the Company's bylaws, the Company indemnifies its officers and directors for certain events or occurrences while the officers or directors are or were serving in such capacity. The Company is also party to indemnification agreements with its officers and directors. The Company considers the fair value of the indemnification rights and agreements as minimal. Accordingly, the Company has not recorded any liabilities for these indemnification rights and agreements as of June 30, 2022 or December 31, 2021.

Other Contingencies

We are not currently a party to any material legal proceedings. From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. Regardless of outcome, litigation can have an adverse impact on us due to defense and settlement costs, diversion of management resources, negative publicity, reputational harm and other factors.

10. Preferred Stock

Series A Common Stock Equivalent Convertible Preferred Stock

In January 2022, the Company entered into an Exchange Agreement (the "Exchange Agreement") with Deerfield Private Design Fund IV, L.P. (the "Deerfield Holder"), pursuant to which the Deerfield Holder exchanged an aggregate of 2,500,000 shares of the Company's common stock held by the Deerfield Holder for 2,500 shares of a newly created class of non-voting preferred stock designated as Series A Common Stock Equivalent Convertible Preferred Stock. Additionally, in connection with the issuance of the Series A Common Stock Equivalent Convertible Preferred Stock, the Company filed a Certificate of Designation, Preferences and Rights of Series A Common Stock Equivalent Convertible Preferred Stock, par value $0.0001 per share, of the Company with the Secretary of State of the State of Delaware. Each outstanding share of Series A Common Stock Equivalent Convertible Preferred Stock is entitled to a *de minimis* liquidation preference of $0.0001 per share. The Series A Common Stock Equivalent Convertible Preferred Stock is convertible into 1,000 shares of common stock for each share of Series A Common Stock Equivalent Convertible Preferred Stock at the option of the holder. Additionally, the ability of a holder to convert non-voting Series A Common Stock Equivalent Convertible Preferred Stock into common stock is prohibited to the extent that, upon such conversion, such holder, its affiliates and other persons whose ownership of common stock would be aggregated with that of such holder for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, would exceed 4.9% of the total number of shares of common stock then outstanding.

The Company classifies Series A Common Stock Equivalent Convertible Preferred Stock as permanent equity on the balance sheet because it is not redeemable for cash or other assets of the Company and is not considered debt under ASC 480. There are no features of the Series A Common Stock Equivalent Convertible Preferred Stock that require bifurcation and separate accounting under ASC 815. Series A Common Stock Equivalent Convertible Preferred Stock is considered a participating security for purposes of calculating earnings per share under ASC 260 because it participates in dividends ratably on an as-converted basis with common stock.

Pre-IPO Convertible Preferred Stock

Prior to its conversion to common stock in connection with the Company's IPO, the convertible preferred stock was classified as temporary, or mezzanine, equity on the accompanying condensed balance sheets since the shares contained certain redemption features that were not solely within the control of the Company. The Company had not previously accreted the convertible preferred stock to its redemption value since the shares were not redeemable and redemption was not deemed to be probable. In connection with the completion of the Company's IPO, all of the outstanding shares of convertible preferred stock were automatically converted into 38,826,388 shares of the Company's common stock.

The convertible preferred stock outstanding prior to its conversion in the IPO was as follows:

	Shares Authorized	Shares Issued and Converted	Issue Period	Price per Share	Aggregate Liquidation Preference
Series Seed	6,520,790	6,520,790	2016	$ 0.6901	$ 4,500,000
Series A	12,932,429	12,932,429	2017	1.5465	20,000,000
Series B	19,566,903	19,373,169	2019	2.3228	45,000,000
Total	39,020,122	38,826,388			$ 69,500,000

11. Stock Incentive Plans

2021 and 2016 Equity Incentive Plans

The Company's Board of Directors and stockholders adopted and approved the Company's 2021 Equity Incentive Plan (the "2021 Plan") in May 2021. The 2021 Plan replaced the Company's 2016 Equity Incentive Plan adopted in September 2016 (the "2016 Plan"); however, awards outstanding under the 2016 Plan will continue to be governed by their existing terms. The number of shares of the Company's common stock that were initially available for issuance under the 2021 Plan equaled the sum of 7,500,000 shares plus 832,980 shares that were then available for issuance under the 2016 Plan. The 2021 Plan provides for the following types of awards: incentive and nonqualified stock options, stock appreciation rights, restricted shares and restricted stock units.

The number of shares of common stock reserved for issuance under the 2021 Plan are increased automatically on the first business day of each fiscal year, commencing in 2022 and ending in 2031, by a number equal to the lesser of: (i) 5% of the shares of common stock outstanding on the last business day of the prior fiscal year; or (ii) the number of shares determined by the Company's Board of Directors. In general, to the extent that any awards under the 2021 Plan are forfeited, terminated, expired or lapsed without the issuance of shares, or if the Company reacquires the shares subject to awards granted under the 2021 Plan, those shares will again become available for issuance under the 2021 Plan, as will shares applied to pay the exercise or purchase price of an award or to satisfy tax withholding obligations related to an award.

Stock-based awards are governed by agreements between the Company and the recipients. Incentive stock options and nonqualified stock options may be granted under the 2021 Plan (and previously the 2016 Plan) at an exercise price of not less than 100% of the fair market value of the Company's common stock on the date of grant. The grant date is the date the terms of the award are formally approved by the Company's Board of Directors or its designee.

The following table summarizes stock option activity under the stock incentive plans since December 31, 2021:

	Number of Options	Weighted-Average Exercise Price (per Share)	Weighted-Average Remaining Contract Term (in Years)
Outstanding at December 31, 2021	5,322,314	$ 6.75	
Exercisable at December 31, 2021	3,296,183	3.03	
Granted	4,754,555	6.94	
Exercised	(228,043)	0.45	
Canceled or forfeited	(514,455)	20.42	
Outstanding at June 30, 2022	9,334,371	6.80	8.84
Exercisable at June 30, 2022	3,599,146	4.12	7.76

The 2016 Plan allows for the early exercise of awards to plan participants subject to the right of repurchase by the Company at the lower of the original exercise price or fair market value for unvested awards. At June 30, 2022 and December 31, 2021, the Company has a liability for the cash received from the early exercise of stock options in the amount of $0.7 million and $1.7 million, respectively. The Company reduces the liability as the underlying shares vest in accordance with the vesting terms of the awards or when the Company repurchases unvested awards.

As of June 30, 2022 and December 31, 2021, there were 845,429 and 2,198,933, respectively, of early exercised stock options that remain subject to the Company's repurchase right.

Employee Stock Purchase Plan

In May 2021, the Company's Board of Directors approved the 2021 Employee Stock Purchase Plan (the "ESPP"). A total of 730,000 shares of common stock was initially reserved for issuance under the ESPP. The price at which common stock is purchased by employees under the ESPP is equal to 85% of the fair market value of the common stock on the first day of the offering period or purchase date, whichever is lower.

During the six months ended June 30, 2022, 174,019 shares of common stock were issued under the ESPP.

Stock-based Compensation Summary

The classification of stock-based compensation expense is summarized as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Research and development	$ 1,012	$ 581	$ 1,921	$ 806
Selling, general and administrative	2,593	1,760	5,250	2,631
Total stock-based compensation expense	$ 3,605	$ 2,341	$ 7,171	$ 3,437

As of June 30, 2022, total unrecognized stock-based compensation expense was $33.0 million and is expected to be recognized over the weighted-average period of approximately 2.8 years.

The following table shows the weighted-average assumptions used to compute the fair value of the awards granted to employees and nonemployees using the Black-Scholes option pricing model during the periods below:

	Six Months Ended June 30,	
Assumption	2022	2021
Expected volatility	57.27%	78.68%
Expected term (years)	5.3−6.1	5.5−6.1
Expected dividend yield	0.00%	0.00%
Risk-free interest rate	1.86%	0.90%
Forfeiture rate	0.00%	0.00%

Common stock reserved for future issuance consisted of the following as of June 30, 2022:

Stock options issued and outstanding under all Plans	9,334,371
Authorized for future grants under the 2021 Plan	7,261,233
Authorized for future grants under the ESPP	1,220,972
Total as of June 30, 2022	17,816,576

12. Net Loss per Share

The Company's preferred stock were considered participating securities for purposes of calculating earnings per share because they had a right to participate in dividends with common stock. However, because the Company's preferred stock do not have a contractual obligation to share in the losses of the Company on a basis that is objectively determinable, they were excluded from the calculation of basic net loss per share.

The following common stock equivalents were excluded from the computation of diluted net loss per share for the periods presented because including them would have had an anti-dilutive effect:

	June 30,	
	2022	**2021**
Employee stock options issued and outstanding	9,334,371	4,679,038
Series A Common Stock Equivalent Convertible Preferred Stock	2,500,000	-
Common stock subject to the Company's right of repurchase	845,429	2,958,410
Total	12,679,800	7,637,448

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our financial statements and the related notes to those statements included in Item 1 of this report. In addition to historical financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results and timing of selected events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including, but not limited to, those discussed under the section titled "Risk Factors" elsewhere in this report. See the section titled "Special Note Regarding Forward-Looking Statements" elsewhere in this report.

Overview

We are a life science technology company that develops next-generation sequencing and multiomics technologies. The commercially available G4 Sequencing Platform is a powerful, highly versatile benchtop genomic sequencer designed to produce fast and accurate results. In development, the PX system leverages our proprietary sequencing technology, applying it as an in-situ readout to look at RNA and proteins in single cells and tissue. With these products, our mission is to empower researchers and clinicians to advance science and medicine.

We developed a unique and proprietary NGS technology, which we refer to as our Sequencing Engine. This Sequencing Engine is the foundational platform technology of our products and core product tenets: power, speed, flexibility and accuracy. The core of our Sequencing Engine is comprised of unique and proprietary chemistry, including novel chemical compounds, polymers and enzymes. This chemistry is designed to produce high sequencing accuracy and rapid cycle times that we believe can drive improvements in NGS. To take full advantage of the proprietary chemistry, we have developed and continue to develop purpose-built instrumentation consisting of high-speed, high-resolution imaging and innovative fluidic design. We believe that our Sequencing Engine, together with our proprietary innovations in molecular biology techniques, will enable differentiated applications in fast-growing markets, supported by our intellectual property portfolio.

The G4 is a benchtop next-generation sequencer designed to produce fast and accurate sequencing results. The G4 is designed to target the NGS market in particular applications that require power, speed, flexibility and accuracy. We believe the G4 will expand and accelerate the use of DNA sequencing across a wide range of applications, such as identifying cancer-associated genetic mutations, deep sequencing to detect minimum residual disease in circulating cell-free DNA, profiling the immune system, analyzing single-cell RNA transcription and rapidly sequencing exomes and whole genomes. We are executing a three-step commercialization plan for the G4 consisting of the following: (i) collaborating with select partners to conduct beta pilot tests, which we completed in 2021; (ii) collaborating with potential customers in our early access program, which we concluded in the second quarter of 2022; and (iii) offering the G4 broadly to the market. We commercially launched the G4 in December of 2021. Although we commenced shipping the G4 in the second quarter of 2022, we have experienced delays in the scale-up of our manufacturing process for initial G4 units and are focusing efforts to improve this process as we continue to commercialize the G4.

The PX is our second product in development and is a multiomics platform designed to target the markets for single-cell, spatial analysis and proteomics. The PX will leverage our Sequencing Engine as a readout mechanism to provide a high-resolution view of biology at the single-cell and tissue level. We believe the PX, when launched, will be a high-throughput, versatile platform capable of measuring levels of RNA transcription, protein expression and sequence specific information directly in cells and tissues. We believe the PX will have broad application across many areas of biology. We are initially focused on applications in oncology and immunology, with future expansion into other applications such as neurology. We are currently in an advanced prototype development stage for the PX. We anticipate initiating a technology access program in the second half of 2022, which will be similar to our early access program, but we intend to initially bring samples and collaborators in-house. We anticipate commercially launching the PX in late 2023.

Corporate and Financial Overview

Since we were incorporated in 2016, we have devoted substantially all of our resources to research and product development activities, initiating our commercialization plans, establishing and maintaining our intellectual property portfolio, hiring personnel, raising capital, building our commercial infrastructure and providing general and administrative support for these activities. Since our incorporation, we have incurred significant losses and negative cash flows from operations. During the six months ended June 30, 2022, we incurred a net loss of $46.0 million and used $45.4 million of cash in our operations. As of June 30, 2022, we had an accumulated deficit of $197.9 million. We expect to continue to incur significant and increasing losses and do not expect positive cash flows from operations for the foreseeable future, and our net losses may fluctuate significantly from period to period depending on the timing of and expenditures on our commercialization and research and development activities.

On June 1, 2021, we closed our initial public offering ("IPO") in which we sold 11,730,000 shares of our common stock (which includes 1,530,000 shares that were offered and sold pursuant to the full exercise of the underwriters' option to purchase additional shares) at a public offering price of $22.00 per share, resulting in net proceeds of approximately $237.2 million after deducting offering costs, underwriting discounts and commissions of $20.9 million.

From the date of our incorporation through June 30, 2022, we have financed our operations primarily through private placements of convertible preferred stock and convertible promissory notes and the net proceeds from our IPO. We have raised aggregate net proceeds of approximately $447.4 million, net of issuance costs, including the $130.5 million we raised through the issuance of convertible promissory notes in February 2021 (the "2021 Convertible Notes"), and including $10.5 million of advances on our loan agreement with Silicon Valley Bank (the "Loan Agreement"). As of June 30, 2022, we had cash, cash equivalents and short-term investments of $287.5 million.

We expect our expenses to increase significantly in connection with our ongoing activities as we:

- commercialize and continue to enhance the G4;
- continue to develop our planned PX;
- attract, hire and retain qualified personnel;
- expand our sales, marketing, service, support and distribution infrastructure to support our commercialization plans and engage in commercialization activities;
- build-out and expand our in-house manufacturing capabilities and engage in larger scale manufacturing activities;
- continue to engage in research and development of other products and enhancements;
- implement operational, financial and management information systems; and
- obtain, maintain, expand and protect our intellectual property portfolio.

Columbia License Agreement

In August 2016, we entered into an Exclusive License Agreement (the "License Agreement") with Columbia. The License Agreement includes a number of diligence obligations that require us to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products (as defined in the License Agreement) by certain dates. Under the License Agreement, we pay an annual license fee that increases each year, until it reaches a low six-digit fee for the fifth year, and for each subsequent year, for so long as the License Agreement remains in force. For any products within the scope of the License Agreement that we commercialize, we are required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single-digit royalty rates on net sales of Other Products. We can credit our yearly annual license fee against any yearly royalty fees payable to Columbia. Additionally, if we receive any income in connection with any sublicenses, we must pay Columbia a high single-digit percentage of that income. Finally, the License Agreement provides for payments to Columbia based on our achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement.

COVID-19 Pandemic

We are continuing to assess the impact of the COVID-19 pandemic on our current and future business and operations, as well as on our industry and the healthcare system. The COVID-19 pandemic and efforts to reduce its spread have adversely impacted and may materially and adversely impact our business and operations in the future. For instance, there were previously standing "stay-at-home" orders in California, and specifically in San Diego County, where our headquarters is located. We have continued to operate within the rules applicable to our business; however, while many of these mandates have expired, an extended implementation of these governmental mandates or institution of other mandates could further impact our ability to operate effectively and conduct ongoing research and development or other activities. Additionally, we have experienced longer lead times from our suppliers of components used in our product development and manufacturing operations, including due to supply chain challenges currently being experienced generally in the economy. Pandemic precautions and preventative measures may also impact our commercialization plans due to restrictions on our customers' ability to access laboratories, causing delays in the delivery and installation of our products, training such customers on our products and their ability to conduct research. The ongoing build-out of our planned future headquarters and manufacturing facilities may also be delayed by COVID-19 related restrictions. The COVID-19 pandemic has also had an adverse effect on our ability to attract, recruit, interview and hire at the pace we would typically expect to support our rapidly expanding operations. To the extent that any governmental authority imposes additional regulatory requirements, or continues to maintain regulatory requirements or changes existing laws, regulations and policies that apply to our business and operations, such as additional workplace safety measures, our product development plans may be delayed, and we may incur further costs in bringing our business and operations into compliance with new laws, regulations and policies.

Components of Our Results of Operations

Revenue

We commenced shipping the G4 in the second quarter of 2022 and will recognize revenue from shipped instruments once the applicable acceptance criteria have been met.

Operating Expenses

Research and Development

Research and development expenses consist primarily of the following: salaries, payroll taxes, employee benefits and stock-based compensation for personnel engaged in research and development activities; fees paid to consultants; license fees paid to third parties for use of their intellectual property; laboratory supplies and development compound materials; and allocated facilities and depreciation costs. All research and development costs are charged to expense as incurred.

We plan to continue to increase our investment in our research and development efforts related to our product development pipeline and our proprietary technology, including related to enhancements to the G4 and development of the planned PX. Therefore, we expect our research and development expenses will increase as we incur expenses associated with hiring additional personnel, purchasing supplies and materials and the allocation of facility expense associated with the ongoing build-out of our expansion facilities to support our research and development efforts.

Selling, General and Administrative

Selling, general and administrative expenses consist primarily of the following: salaries, payroll taxes, employee benefits and stock-based compensation for personnel in our executive management, operations, sales, finance, human resources and administrative functions; directors and officers insurance costs; professional service fees, including for legal, accounting, patent, auditing and other services; allocated facilities and depreciation costs; and other costs to support our operations.

We plan to continue to increase our investment in our personnel as we grow. We also have incurred and expect to incur additional costs as a result of operating as a public company, including costs of legal, audit, accounting, regulatory and tax compliance services, directors and officers insurance costs, and investor and public relations costs. As a result, we expect our selling, general and administrative expenses will increase in future periods.

Other Income (Expense)

Interest and Other Income

Interest and other income primarily consists of interest earned on cash, cash equivalents and short-term investments primarily from holdings in corporate notes, U.S. treasury securities and asset-backed securities.

Interest Expense

Interest expense consists of interest related to our Loan Agreement with Silicon Valley Bank, including amortization of debt issuance cost.

Change in Fair Value of Convertible Promissory Notes

Prior to the IPO, we accounted for the convertible promissory notes (the "2021 Convertible Notes") in accordance with the provisions of Accounting Standards Codification ("ASC") 480, *Distinguishing Liabilities from Equity* and ASU 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*. We adjusted the carrying value of the liability for the 2021 Convertible Notes to its estimated fair value at the end of each reporting period through conversion, with increases in fair value recorded as other income or expense in the statements of operations.

Change in Fair Value of Warrant Liability

Prior to the IPO, we accounted for the warrant for preferred stock (the "SVB Warrant," see Note 8 to our condensed financial statements included in Item 1) in accordance with the provisions of ASC 480, *Distinguishing Liabilities from Equity*, which requires that warrants for the purchase of shares in contingently redeemable instruments be accounted for as liabilities. We adjusted the carrying value of the SVB Warrant liability to its estimated fair value at the end of each reporting period through conversion, with increases or decreases in fair value recorded as other income or expense in the statements of operations.

Results of Operations

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

The following table summarizes our results of operations for the periods indicated:

	Three Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Operating expenses:				
Research and development	$ 12,061	$ 7,682	$ 4,379	57%
Selling, general and administrative	12,182	6,201	5,981	96%
Loss from operations	$ (24,243)	$ (13,883)	$ (10,360)	75%
Interest and other income	428	413	15	4%
Interest expense	(167)	(232)	65	-28%
Change in fair value of convertible promissory notes	-	(23,799)	23,799	-100%
Change in fair value of warrant liability	-	22	(22)	100%
Net loss	$ (23,982)	$ (37,479)	$ 13,497	-36%

Research and Development Expense

The following table summarizes our research and development expense for the periods indicated:

	Three Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Research and development expense	$ 12,061	$ 7,682	$ 4,379	57%

Research and development expense increased by $4.4 million, or 57%, in the three months ended June 30, 2022 compared to the same period in 2021. The increase was primarily due to an increase of $2.2 million in employee compensation costs, including $0.5 million of stock-based compensation, to support the development efforts of our G4 and our beta development for the PX. Other increases include $0.8 million related to products and supplies used for in-house research and $1.4 million related to the expansion of our facilities and information technology costs to support growth.

Selling, General and Administrative Expense

The following table summarizes our selling, general and administrative expense for the periods indicated:

	Three Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Selling, general and administrative expense	$ 12,182	$ 6,201	$ 5,981	96%

Selling, general and administrative expense increased by $6.0 million, or 96%, in the three months ended June 30, 2022 compared to the same period in 2021. The increase was primarily due to a $3.0 million increase in employee compensation costs, including $0.8 million of stock-based compensation, resulting from hiring additional personnel to support our growth and prepare for commercialization of the G4. Other increases include $1.7 million in professional and consulting fees related to insurance, legal, audit and other costs associated with becoming a public company, as well as $0.8 million related to the expansion of our facilities and information technology costs to support growth.

Other Income (Expense)

The following table summarizes our other income (expense) for the periods indicated:

	Three Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Interest and other income	$ 428	$ 413	15	4%
Interest expense	(167)	(232)	65	-28%
Change in fair value of convertible promissory notes	-	(23,799)	23,799	-100%
Change in fair value of warrant liability	-	22	(22)	100%
Total	261	(23,596)	23,857	-101%

Other expense decreased by $23.9 million, or nearly 100%, in the three months ended June 30, 2022 compared to the same period in 2021. This decrease is due to the change in the fair value of the convertible promissory notes of $23.8 million during the three months ended June, 2021. The convertible promissory notes converted in connection with the IPO in 2021 and were not outstanding during the three months ended June 30, 2022.

Comparison of the Six Months ended June 30, 2022 and 2021

The following table summarizes our results of operations for the periods indicated:

	Six Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Operating expenses:				
Research and development	$ 22,707	$ 14,289	$ 8,418	59%
Selling, general and administrative	23,556	9,855	13,701	139%
Loss from operations	$ (46,263)	$ (24,144)	$ (22,119)	-92%
Interest and other income	584	543	41	8%
Interest expense	(309)	(420)	111	-26%
Change in fair value of convertible promissory notes	-	(35,199)	35,199	-100%
Change in fair value of warrant liability	-	(2,180)	2,180	-100%
Net loss	$ (45,988)	$ (61,400)	$ 15,412	25%

Research and Development Expenses

The following table summarizes our research and development expenses for the periods indicated:

	Six Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Research and development	$ 22,707	$ 14,289	$ 8,418	59%

Research and development expenses increased by $8.4 million, or 59%, in the six months ended June 30, 2022 compared to the same period in 2021. The increase was primarily due to an increase of $4.5 million in employee compensation costs, including $1.2 million of stock-based compensation, to support the development efforts of our G4 and our beta development for the PX. Other increases include $1.8 million in laboratory materials, supplies and reagents used for in-house research, $1.7 million related to the expansion of facilities and maintenance and $0.4 million in increased depreciation.

Selling, General and Administrative Expenses

The following table summarizes our general and administrative expenses for the periods indicated:

	Six Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Selling, general and administrative	$ 23,556	$ 9,855	$ 13,701	139%

General and administrative expenses increased by $13.7 million, or 139%, in the six months ended June 30, 2022 compared to the same period in 2021. The increase was primarily due to a $7.9 million increase in employee compensation costs, including $2.6 million of stock-based compensation, as a result an increase in personnel to support our growth and prepare for commercialization of the G4. Other increases include $4.0 million in professional and consulting fees related to insurance, accounting and audit services and corporate legal matters and a $1.0 million increase in facilities and information technology costs to support growth.

Other Income (Expense)

The following table summarizes our other income (expense) for the periods indicated:

	Six Months Ended June 30,			
	2022	2021	$ Change	% Change
	(in thousands)			
Interest income	$ 584	$ 543	$ 41	8%
Interest expense	(309)	(420)	111	-26%
Change in fair value of convertible promissory notes	-	(35,199)	35,199	-100%
Change in fair value of warrant liability	-	(2,180)	2,180	-100%
Total	$ 275	$ (37,256)	$ 37,531	-101%

Other expense decreased by $37.5 million for the six months ended June 30, 2022 compared to the six months ended June 30, 2021, primarily due to the increase in the fair value of our convertible promissory notes by $35.2 million and in fair value of warrant liabilities by $2.2 million during the six months ended June 30, 2021. The convertible promissory notes converted in connection with the IPO in 2021 and were not outstanding during the six months ended June 30, 2022.

Liquidity and Capital Resources

Since we incorporated in June 2016, we have devoted substantially all of our resources to research and product development activities, initiating our commercialization plans, establishing and maintaining our intellectual property portfolio, hiring personnel, raising capital, building our commercial infrastructure and providing general and administrative support for these activities. Since our incorporation, we have not recognized any revenues from product sales and have incurred significant operating losses and negative cash flows from operations. From incorporation through June 30, 2022, we have financed our operations primarily through private placements of convertible preferred stock and convertible promissory notes and the net proceeds from our IPO. We expect to continue to incur significant and increasing losses and do not expect positive cash flows from operations for the foreseeable future, and our net losses may fluctuate significantly from period to period depending on the timing of, and expenditures on, our commercialization and research and development activities. In particular, we expect to incur increasing costs in the near term in connection with the commercialization of the G4, which includes, among others, increasing our sales and marketing and other commercialization efforts to drive market adoption and scaling our manufacturing and customer support capabilities. During the six months ended June 30, 2022, we incurred a net loss of $24.0 million and used $45.4 million of cash in operations. As of June 30, 2022, we had an accumulated deficit of $197.9 million. As of June 30, 2022, we had cash, cash equivalents and short-term investments of $287.5 million.

Our capital obligations include minimum lease payments of $2.7 million for the remainder of 2022, $6.7 million in 2023 and $259.1 million thereafter. Our capital obligations also include minimum payments under our Loan Agreement with Silicon Valley Bank of $0.2 million for the remainder of 2022, $0.6 million in 2023 and $12.0 million thereafter. Our capital obligations also include payments under our License Agreement with Columbia. Under the License Agreement, we will pay a low six-digit annual license fee for so long as the License Agreement remains in force. For any products within the scope of the License Agreement that we commercialize, we are required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single digit royalty rates on net sales of Other Products, as such terms are defined in the License Agreement. We can credit our yearly annual license fee against any yearly royalty fees payable to Columbia. Additionally, if we receive any income in connection with any sublicenses, we must pay Columbia a high single-digit percentage of that income. Finally, the License Agreement provides for payments to Columbia based on our achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement. Our leases and the License Agreement are further described in Note 9 to the unaudited financial statements contained elsewhere in this report. The Loan Agreement is further described in Note 8 to the unaudited financial statements contained elsewhere in this report.

Our future capital requirements will depend on many factors including executing on our commercialization plans, continuing to invest into our research and development projects and other factors described in the section titled “Risk Factors” elsewhere in this report. Based on our current operating plan, we believe our existing cash, cash equivalents and short-term investments will enable us to fund our planned operations for at least 12 months from the issuance date of this report. We have based our estimate of capital requirements on assumptions that may prove to be incorrect, and, as we continue to face challenges and uncertainties, our available capital resources may be consumed more rapidly than currently expected due to a variety of factors, including those factors described in the section titled “Risk Factors” elsewhere in this report.

We may need to seek additional financing in the future to support our operations, research and development activities and commercialization plans. If we are not able to generate sufficient revenue to finance our cash requirements, if the maximum availability of $35.5 million under our Loan Agreement is not sufficient to finance our cash requirements, or if we are not able to raise additional capital or enter into financing agreements or arrangements when required on favorable terms, or at all, we may have to delay, reduce the scope of, or discontinue one or more development programs, delay potential commercialization or reduce the scope of sales or marketing activities and pursue other cost cutting measures, including the reduction of headcount, scope of operations and planned capital expenditures, which may have a material adverse effect on our business, results of operations, financial condition or ability to fund our scheduled obligations on a timely basis or continue as a going concern. We cannot assure you that we will ever be profitable or generate positive cash flow from operating activities or that, if we achieve profitability, we will be able to sustain it.

On July 19, 2022, we filed a shelf registration statement (the “Shelf Registration Statement”) on Form S-3 with the SEC (that was declared effective by the SEC on July 27, 2022), which permits us to offer up to $250 million of common stock, preferred stock, debt securities and warrants in one or more offerings and in any combination, including in units from time to time. Our Shelf Registration Statement is intended to provide us with additional flexibility to raise capital in the future for general corporate purposes. As part of this Shelf Registration Statement, we also filed a sales agreement prospectus covering the “at the market” offerings, pursuant to which we may offer and sell up to $100 million of our common stock under a sales agreement (the “Sales Agreement”) with Cowen and Company, LLC. Through the date of this filing, we have not sold any shares of our common stock in “at the market” transactions pursuant to the Sales Agreement.

Cash Flows

The following table sets forth the sources and uses of cash, cash equivalents and restricted cash for each of the periods presented below:

	Six Months Ended June 30,	
	2022	2021
	(in thousands)	
Net cash provided by (used in):		
Operating activities	$ (45,391)	$ (25,026)
Investing activities	(1,620)	(101,827)
Financing activities	124	372,638
Net (decrease) increase in cash and cash equivalents and restricted cash	$ (46,887)	$ 245,785

Operating Activities

During the six months ended June 30, 2022, cash used in operating activities was $45.4 million attributable to a net loss of $46.0 million and changes in working capital of $10.9 million, offset by non-cash charges of $11.5 million. Non-cash charges primarily consisted of $7.2 million of stock-based compensation expense and $1.6 million related to the amortization of premiums on the Company's short-term investments.

During the six months ended June 30, 2021, cash used in operating activities was $25.0 million attributable to a net loss of $61.4 million and changes in working capital of $5.6 million, offset by non-cash charges of $42.0 million. Non-cash charges primarily consisted of a $35.2 million change in the fair value of the 2021 Convertible Notes, a $2.2 million change in the fair value of the SVB Warrant liability and $3.4 million of stock-based compensation expense.

Investing Activities

During the six months ended June 30, 2022, cash provided by investing activities was $1.6 million, which related to proceeds from sales and maturities of available-for-sale securities of $66.6 million, offset by purchases of available-for-sale securities of $65.1 million and $3.1 million in payments for purchases of property and equipment.

During the six months ended June 30, 2021, cash used in investing activities was $101.8 million, which related to purchases of available-for-sale securities of $122.7 million and $1.5 million in payments for purchases of property and equipment, offset by proceeds from sales and maturities of available-for-sale securities of $22.3 million.

Financing Activities

During the six months ended June 30, 2022, cash provided by financing activities was $0.1 million, which was primarily related to cash proceeds from issuance of common stock for exercises of stock options under our employee equity incentive plans, offset by repurchases.

During the six months ended June 30, 2021, cash provided by financing activities was $372.6 million, which was related to proceeds from our initial public offering of $238.6 million and issuance of convertible notes of $130.5 million.

Indebtedness

In November 2019, we entered into a loan and security agreement with Silicon Valley Bank pursuant to which Silicon Valley Bank agreed to lend us up to $15.0 million in a series of term loans (the "2019 SVB Loan"). We borrowed an aggregate of $10.0 million under the 2019 SVB Loan. The 2019 SVB Loan was to mature on September 1, 2023 and bore interest at an annual rate equal to the greater of (a) 0.65% above the prime rate or (b) 5.90%. Payment on the 2019 SVB Loan was for interest only through September 30, 2021. In addition, a final payment equal to the original principal amount of each advance multiplied by 5.50% was to be due on the maturity date.

On September 30, 2021, we refinanced our 2019 SVB Loan. In connection with the refinancing, we entered into the Loan Agreement (together with the 2019 SVB Loan, the "SVB Loans") with Silicon Valley Bank. The Loan Agreement provides for term loans in an aggregate principal amount of up to $35.5 million to be delivered in three tranches. The tranches consist of: (i) a term loan advance to us in an aggregate principal amount of $10.5 million on the loan closing date (the "First Tranche"); (ii) an additional term loan advance available to us through September 30, 2022 in an aggregate principal amount of $15.0 million; and (iii) subject to Silicon Valley Bank's approval, our right to request that Silicon Valley Bank make an additional term loan advance in an aggregate principal amount of $10.0 million. The proceeds from the First Tranche were used to repay in full the existing indebtedness under the 2019 SVB Loan. The Loan Agreement matures on September 1, 2026 and bears interest at an annual rate equal to the greater of (a) 0.75% plus the prime rate as reported in The Wall Street Journal and (b) 4.00%. The Loan Agreement has an initial interest-only period of 36 months. In addition, a final payment ("Final Payment Fee") equal to the original principal amount of each advance multiplied by 4.00% will be due on the maturity date.

We are subject to customary affirmative and restrictive covenants under the Loan Agreement. Our obligations under the Loan Agreement are secured by a first priority security interest in substantially all of our current and future assets, other than intellectual property. We have agreed not to encumber our intellectual property assets, except as permitted by the Loan Agreement. The Loan Agreement provides for events of default customary for term loan facilities of this type, including but not limited to: non-payment; breaches or defaults in the performance of covenants or representations and warranties; bankruptcy and other insolvency events; and the occurrence of a material adverse change as defined in the Amended Agreement. After the occurrence of an event of default, Silicon Valley Bank may, among other remedies, accelerate payment of all obligations.

Critical Accounting Policies, Significant Judgments and Use of Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our condensed financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). The preparation of financial statements requires us to make estimates and judgements that affect the reported amounts of assets, liabilities, costs and expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Changes in estimates are reflected in reported results for the period in which they become known. Actual results could differ significantly from the estimates made by our management.

Except as set forth below, there have been no material changes to our critical accounting policies and estimates as compared to the critical accounting policies and estimates disclosed in our Annual Report on Form 10-K for the year ended December 31, 2021.

Leases

We adopted Accounting Standards Codification ("ASC") Topic 842, Leases ("ASC 842"), effective January 1, 2022. ASC 842 requires us to recognize on the balance sheet lease liabilities and corresponding right-of-use ("ROU") lease assets for our operating leases where we are the lessee.

We determine if an arrangement is or contains a lease at contract inception. Lease liabilities represent our obligation to make payments under our operating leases. ROU lease assets represent our right to use assets under our operating leases. We determine the value of lease liabilities and ROU lease assets on a lease-by-lease basis. A lease liability is recognized at the commencement date of an operating lease based on the present value of the future lease payments over the expected lease term. A corresponding ROU lease asset is recognized at the commencement date of an operating lease based on the value of the lease liability, adjusted for any lease incentives received, any initial direct costs incurred and any lease payments made at or before the lease commencement date.

We calculate the present value of lease payments using the discount rate implicit in the lease, unless that rate cannot be readily determined. In that case, we use our incremental borrowing rate based on information available at the date of lease commencement. The incremental borrowing rate is the estimated rate of interest that we would pay to borrow, on a collateralized basis, an amount equal to the lease payments over the expected lease term. Determining the incremental borrowing rate requires using assumptions that require management's judgment. The assumptions used in estimating the incremental borrowing rate include our recent borrowing activity and industry data for loans with similar terms. Changes to any of these assumptions would impact our estimate of our incremental borrowing rate and thus could significantly impact the value recorded for our lease liabilities and ROU lease assets.

Revenue Recognition

We commenced shipping the G4 in the second quarter of 2022 and will recognize revenue once the applicable acceptance criteria have been met. As we commercialize the G4, we expect to recognize revenue from sales of the G4, related consumable flow cell kits and services. We have not recognized any revenue to date.

The process of revenue recognition involves five steps: (1) identifying the contract with a customer; (2) determining the performance obligations in the contract; (3) determining the transaction price; (4) allocating the transaction price to the performance obligations based on standalone selling prices; and (5) recognizing revenue when or as the performance obligations are satisfied.

Identifying the Contract—Contracts are agreements with our customers that create enforceable rights and obligations. In some cases, we may account for multiple contracts as one contract

Determining Performance Obligations—Performance obligations are promises to transfer goods or services to a customer that are distinct. A performance obligation is considered distinct from other obligations in a contract when it is separately identified in the contract and provides a benefit to the customer either on its own or together with other resources that are readily available to the customer. Our distinct performance obligations primarily consist of the delivery and installation of the G4, delivery of consumables and providing related support services.

Determining the Transaction Price—The transaction price is the amount of consideration we expect to be entitled from the customer in exchange for the promised goods or services and is generally fixed and stated in the contract with the customer.

Allocating the Transaction Price to Each Performance Obligation—We allocate the transaction price to each performance obligation based on our estimate of each performance obligation's standalone selling price. Until we have sufficient volume of historical sales data for each performance obligation, we determine the standalone selling price using observable prices when available and the adjusted market approach, which is primarily based on prices set by management, adjusted for applicable discounts.

Recognizing Revenue—The allocated transaction price for each performance obligation is recognized as revenue as we satisfy each performance obligation. In instances where right of payment or transfer of title is contingent on the customer's acceptance of the product, revenue is not recognized until the acceptance criteria have been met. Although we commenced shipping the G4 in the second quarter of 2022, we will not recognize revenue from shipped instruments until the applicable acceptance criteria have been met.

Recent Accounting Pronouncements

A description of recent accounting pronouncements that may potentially impact our financial position, results of operations or cash flows is disclosed in Note 2 to our financial statements included elsewhere in this report.

Off–Balance Sheet Arrangements

Since our inception, we have not engaged in any off–balance sheet arrangements, as such term is defined in the rules and regulations of the Securities and Exchange Commission ("SEC").

JOBS Act

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended (the "JOBS Act"). We will remain an emerging growth company until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual gross revenue; (ii) the date we qualify as a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, with at least $700 million of equity securities held by non-affiliates; (iii) the issuance, in any three-year period, by us of more than $1.0 billion in non-convertible debt securities; or (iv) December 31, 2026. As a result of this status, we have taken advantage of certain exemptions from various reporting requirements in this report that are applicable to other publicly traded entities that are not emerging growth companies and may elect to take advantage of other exemptions from reporting requirements in our future filings with the SEC. In particular, in this report, these exemptions include:

- the option to present only two years of audited financial statements and only two years of Management's Discussion and Analysis of Financial Condition and Results of Operations;
- not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002, as amended;
- not being required to submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency," and "say-on-golden parachutes;" and
- not being required to disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation.

As a result, we do not know if some investors will find our common stock less attractive. The result may be a less active trading market for our common stock, and the price of our common stock may become more volatile.

In addition, Section 107 of the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards, delaying the adoption of these accounting standards until they would apply to private companies. We have elected to avail ourselves of this exemption and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for private companies. Accordingly, the information contained herein may be different than the information you receive from other public companies.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

There were no substantial changes to our market risks during the quarter ended June 30, 2022 when compared to the disclosures in "Item 7A. Quantitative and Qualitative Disclosures About Market Risk" in our Annual Report on Form 10-K for the year ended December 31, 2021.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of 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 ("Exchange Act")) as of the end of the period covered by this report. Based on that evaluation, our Principal Executive Officer and Principal Financial Officer concluded that, as of the end of the period covered by this report, 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 Principal Executive Officer and Principal Financial 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 period covered by this report that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Disclosure Controls and Procedures

Our management, including our principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well designed 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. Due to 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 currently a party to any material legal proceedings. From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. Regardless of outcome, litigation can have an adverse impact on us due to defense and settlement costs, diversion of management resources, negative publicity, reputational harm and other factors.

Item 1A. Risk Factors

Investing in our common stock is speculative and involves a high degree of risk. You should consider and read carefully all of the risks and uncertainties described below, together with all of the other information contained in this report, including the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the related notes, before investing in our common stock. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results. If any of the following risks occur, our business, financial condition, results of operations and future growth prospects could be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment. This report also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a number of factors, including the risks described below. See "Special Note Regarding Forward-Looking Statements" elsewhere in this report.

Risks Related to Our Business and Industry

Our limited operating history makes it difficult to evaluate our future prospects and the risks and challenges we may encounter.

We operate in a highly competitive market characterized by rapid technological advances, frequent new product introductions, evolving industry standards and changing customer preferences. Our limited operating history makes it difficult to evaluate our future prospects and our ability to respond to our competitors, changes in our market and the risks and challenges we may encounter as we expand our business operations. If we fail to address the risks, uncertainties and difficulties that we face, including those described elsewhere in this "Risk Factors" section, our business, financial condition and results of operations could be adversely affected. We have encountered in the past, and will encounter in the future, risks and uncertainties frequently experienced by companies developing and introducing new products in competitive and rapidly changing markets. If our assumptions regarding these risks and uncertainties, which we use to plan and operate our business, are incorrect or change, or if we do not address these risks and uncertainties successfully, our results of operations could differ materially from our expectations, and our business, financial condition and results of operations could be adversely affected.

We have incurred significant losses since inception, we expect to incur significant losses in the future and we may not be able to generate sufficient revenue to achieve and maintain profitability.

We are a pre-revenue life science technology company and have incurred significant losses since we were formed in 2016. We expect to continue to incur significant losses for the foreseeable future as we expand our business operations, manufacture and commercialize the G4, continue to enhance and develop our products and implement our business plans and strategies. Our net loss for the six months ended June 30, 2022 was $46.0 million and for the six months ended June 30, 2021 was $61.4 million. As of June 30, 2022, we had an accumulated deficit of $197.9 million. We expect that our losses will continue for the foreseeable future as we continue to invest significant additional funds toward the commercialization of our products and ongoing research and development. We have experienced these losses and accumulated deficit primarily due to the investments we have made in developing our proprietary technologies and products, building our team and manufacturing capabilities and commercially launching our first product, the G4. Over the next several years, we expect to continue to incur significant expenses as we continue our research and development activities, finalize the development of the PX, continue to build our sales and marketing organization and increase our manufacturing and commercialization capabilities. These efforts may prove to be more costly, or take longer, than we currently anticipate. Additionally, we may encounter unforeseen expenses, product development or manufacturing delays, declines in revenue or other unknown factors that may result in losses in future periods. We have not recognized any product revenue to date, and we may never generate revenue sufficient to offset our expenses, or at all. In addition, as a public company, we have incurred and will incur significant legal, accounting, administrative, insurance and other expenses that we did not incur as a private company. To date, we have financed our operations principally from the sale of common stock, convertible preferred stock, convertible notes and the incurrence of other indebtedness. There can be no assurance that our revenue and gross profit will increase sufficiently such that our net losses decrease, or that we attain profitability, in the future. Further, our limited operating history makes it difficult to effectively plan for and model our operating expenses and our ability to generate revenue. Our ability to achieve and then sustain profitability is based on numerous factors, many of which are beyond our control, including the impact of market acceptance of our products, product development results and timing, offerings or actions taken by our competitors, our market penetration and margins and current and future litigation. We may never be able to generate sufficient revenue to achieve or sustain profitability, which could negatively impact the value of our common stock.

We are a pre-revenue life science technology company and have limited experience developing and commercializing our products or technology, which makes it difficult to evaluate our prospects and predict our future performance.

We commercially launched our first product, the G4, in December of 2021, and have not recognized any revenue to date. There can be no assurance that we will be able to generate sufficient revenue in the future to support our operations and plans. Our operations to date have been focused on developing and commercializing our technologies and products, including the G4. We completed our beta pilot program, have concluded our early access program and have commercially launched the G4. Although we commenced shipping the G4 in the second quarter of 2022, we have experienced delays in the scale-up of our manufacturing process for initial G4 units and are focusing efforts to improve this process as we continue to commercialize the G4. The performance of our products in our beta pilot program and early access program may not be indicative of the performance our customers experience following commercial launch. We expect to make modifications to improve the reliability, quality and/or functionality of the G4 as we manufacture the G4 and in response to customer feedback, and we expect the G4 to improve in time as further units are sold; however, there can be no assurance that this will occur or that we will avoid delays in finalizing these improvements. There can be no assurance that we will be able to timely achieve market acceptance for the G4 in the future. We have limited experience manufacturing the G4 for commercial use, conducting sales and marketing activities at scale and managing customer support at the commercial level. Consequently, predictions about our future success or viability are highly uncertain and hard to predict as a result of our limited operating history, the development stage of our products and our limited history commercializing our technologies or products. Our prospects must be considered in light of the uncertainties, risks, expenses, and difficulties frequently encountered by companies in their early stages of operations.

Further, we are transitioning from a company with a focus on research and development to a company capable of supporting both research and development and robust manufacturing and commercial activities, and we may not be successful in this transition. We have encountered in the past, and will encounter in the future, risks and uncertainties, delays and scientific setbacks frequently experienced by development stage companies with limited operating histories in competitive and rapidly changing industries, such as the genomics industry. If our assumptions regarding these risks and uncertainties, which we use to plan and operate our business, manufacturing and commercialization activities, are incorrect or change, or if we do not address these risks, delays or uncertainties successfully, our results of operations could differ materially from our expectations, and our business, financial condition and results of operations could be adversely affected.

The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer.

We face significant competition in the life sciences technology market. More specifically, the NGS market is characterized by rapid technological changes, frequent new product introductions, established and emerging competition, extensive intellectual property disputes and litigation, price competition, aggressive marketing practices, evolving industry standards and changing customer preferences. Our primary competitors and potential competitors are large publicly traded companies or are divisions of large publicly traded companies, including 10x Genomics Inc., Becton, Dickinson and Company, Bio-Rad Laboratories, Inc., Illumina Inc., MissionBio Inc., Nanostring Technologies, Inc., Oxford Nanopore Technologies Inc., Pacific Biosciences Inc. and Thermo Fisher Scientific Inc. There are other companies, both established and early stage, such as Element Biosciences, Inc. and Ultima Genomics, Inc., who have begun commercializing NGS technologies and products to our target customers. We also face competition from companies and research institutes developing their own products or applications for omics research. This is particularly true for the largest research centers and laboratories who are continually testing and trying new technologies, whether from a third-party vendor or developed internally.

Our current competitors, including those who are large publicly traded companies, or are divisions of large publicly traded companies, enjoy a number of competitive advantages over us, including:

- greater name and brand recognition;
- greater financial and human resources;
- established and trusted commercial relationships with our target customers;
- broader product lines;
- superior product offerings, features or capabilities;
- greater pricing flexibility, including the ability to offer significant discounts and to bundle products and services;
- larger sales and customer service forces and more established distributor networks;
- substantial intellectual property portfolios;
- exclusive or long-term supply agreements with our target customers;
- approvals with the U.S. Food and Drug Administration (the “FDA”) that allow our competitors to market their products for additional uses;
- numerous scientific papers and publications supporting their technologies and product claims; and

- better established, larger scale and lower cost manufacturing capabilities.

We cannot assure investors that we can successfully compete with these competitors or that the G4, our planned PX or any other technologies and products we develop can compete favorably with the offerings from such competitors. We also cannot assure investors that we can successfully defend our technologies and products from lawsuits filed by our competitors without significant expenses, the requirement to complete additional product and technology development, potential manufacturing or commercialization delays, or at all. Further, we cannot assure investors that we will be successful in the face of increasing competition from products and technologies introduced by our existing or future competitors, or developed by our customers internally. In addition, we cannot assure investors that our competitors do not have or will not develop products or technologies that currently or in the future will enable them to offer products with greater capabilities or at lower costs than ours or that are able to run comparable experiments at a lower total experiment costs. Many of our competitors have also been able to enter into long-term, exclusive agreements with major potential customers, often by offering favorable pricing and other terms. Until these agreements expire, our ability to place our products with these customers will be limited. Even after exclusive agreements expire, we may not be able to compete with the terms offered by our competitors in their efforts to extend exclusive relationships with these major potential customers. Any failure to compete effectively could materially and adversely affect our business, financial condition and operating results.

If our products fail to achieve early customer and scientific acceptance, we may not be able to achieve broader market acceptance for our products, and our revenue and prospects may be harmed.

We cannot guarantee that customer experiences or reviews of the G4 from our customers will be favorable. Initial negative perception of the G4 by customers could irreparably damage our reputation and ability to successfully commercialize the G4, our planned PX or any of our other future products. Further, the life sciences scientific community is comprised of a small number of early adopters and key opinion leaders ("KOLs") who significantly influence the rest of the community and the marketplace in general. The success of life sciences products is due, in large part, to acceptance by the scientific community and their adoption of certain products as best practice in the applicable field of research. The current system of academic and scientific research views publishing in a peer-reviewed journal as a measure of success. In such journal publications, the researchers will describe not only their discoveries, but also the methods and typically the products used to fuel such discoveries. Mentions in peer-reviewed journal publications are a good barometer for the general acceptance of our products as best practices. Ensuring that early adopters and KOLs publish research involving the use of our products is critical to ensuring our products gain widespread acceptance and market growth. Continuing to maintain good relationships with such KOLs is vital to growing the acceptance of our products in the marketplace. If early adopters and KOLs do not favorably describe the use of our products, do not compare our products favorably to existing products and technologies, or negatively describe the use and operation of our products in publications, it may drive potential customers away from our products and prevent broader market acceptance of our products, which could harm our business, financial condition and results of operations.

We expect to be highly dependent upon revenue generated from the sale of the G4, and any delay or failure by us to successfully develop and commercialize the G4 could have a substantial adverse effect on our business and results of operations.

We have completed our beta pilot program for the G4, have concluded our early access program, and have commercially launched the G4. Although we commenced shipping the G4 in the second quarter of 2022, we have experienced delays in the scale-up of our manufacturing process for initial G4 units and are focusing efforts to improve this process as we continue to commercialize the G4. Our second planned product, the PX, is under development. We anticipate initiating a technology access program in the second half of 2022 and commercially launching the PX in late 2023. As a result, we expect to generate substantially all of our revenue in the near term from the sale of the G4. There can be no assurance of the following: that the G4 will meet the expectations of our customers, including those relating to cost, reliability, performance and features, or otherwise gain market acceptance; that we can manufacture the G4 in commercial quantities; that we will be able to successfully commercialize the G4; or that we will be able to service and maintain the G4 products that we have sold. Further, there is no assurance that we will be able to successfully complete the development of, or commercialize, our planned PX or any other future products or product enhancements we elect to pursue. To date, we have limited experience simultaneously designing, testing, manufacturing and selling products and there can be no assurances we will be successful in doing so or doing so on our intended timelines. In addition, as technologies change in the life sciences research tools marketplace in general, and in the omics technologies marketplace specifically, we will be expected to upgrade or adapt our products in order to keep up with the latest technology. Further, our competitors may offer or develop products or technologies that cause the G4 or our planned PX to not be commercially attractive to our customers.

Our future financial performance will be dependent on our ability to increase penetration and utilization in our existing markets.

Our financial performance will be driven by, and a key factor to our future success will be, the rate of commercial adoption of the G4 and planned PX. In addition, our financial performance will be dependent on our ability to increase customer utilization of our products, and thereby, increase sales of our consumables and any other associated products and services we offer. There is no assurance that we will be successful in demonstrating our product performance claims and value proposition to potential customers. There also is no assurance that our direct sales and marketing organization in the United States or our direct or distributor sales and marketing efforts in markets outside the United States will drive broad customer adoption of our products. Further, we may not be successful in increasing our customers' usage of our products, or their associated purchase of our consumables and other products and services. Any failure to establish a broad installed base of the G4 and our planned PX among our target customers, or failure to increase the usage of our products and the associated sales of our consumables and other products and services, will limit our revenue growth and harm our results of operations and financial performance.

Our business will depend significantly on research and development spending by academic institutions and other research institutions, and any reduction in spending could limit demand for our products and adversely affect our business, results of operations, financial condition and prospects.

We are initially targeting customers who are already familiar with genomic analysis, including academic institutions, genomic research centers/core labs and government laboratories, as well as pharmaceutical, clinical research organizations ("CROs"), biotechnology, consumer genomics, commercial molecular diagnostic laboratories and agrigenomics companies. We believe that a substantial amount of our sales revenue in the near term will be generated from sales to academic and other research institutions. Therefore, we expect much of these customers' funding will be, in turn, provided by various state, federal and international governmental agencies. As a result, the demand for the G4, our planned PX and any other product or product enhancements we elect to develop in the future may depend in part upon the research and development budgets of these customers, which are impacted by factors beyond our control, such as:

- decreases in government funding of research and development;
- changes to programs that provide funding to research laboratories and institutions, including changes in the amount of funds allocated to different areas of research or changes that have the effect of increasing the length of the funding process;
- macroeconomic conditions and the political climate;
- scientists' and customers' opinions of the utility of new products or services;
- researchers' opinions of the utility of the G4, our planned PX or any other product or product enhancements we elect to develop in the future;
- citation of the G4 and planned PX in published research;
- potential changes in the regulatory environment;
- differences in budgetary cycles, especially government- or grant-funded customers, whose cycles often coincide with government fiscal year ends;
- competitor product offerings or pricing;
- the effect of inflation on budgets of our potential customers;
- market acceptance of new technologies; and
- market driven pressures to consolidate operations and reduce costs.

In addition, various state, federal and international agencies that provide grants and other funding may be subject to stringent budgetary constraints that could result in spending reductions, reduced grant making, reduced allocations or budget cutbacks, which could jeopardize the ability of these customers, or the customers to whom they provide funding, to purchase our products. For example, congressional appropriations to the National Institutes of Health (the "NIH") have generally increased year-over-year for the last 20 years, but the NIH also experiences occasional year-over-year decreases in appropriations, including as recently as 2013. There is no guarantee that NIH appropriations will not decrease in the future. A decrease in the amount of, or delay in the approval of, appropriations to NIH or other similar United States or international organizations, such as the Medical Research Council in the United Kingdom, could result in fewer grants benefiting life sciences research. These reductions or delays could also result in a decrease in the aggregate amount of grants awarded for life sciences research or the redirection of existing funding to other projects or priorities, any of which in turn could cause our customers and potential customers to reduce or delay purchases of our products. Our operating results may fluctuate substantially due to any such reductions and delays. Any decrease in our customers' budgets or expenditures, or in the size, scope or frequency of their capital or operating expenditures, could materially and adversely affect our business, results of operations, financial condition and prospects.

Our operating results may fluctuate significantly in the future, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide.

We have very limited operating history in manufacturing, commercializing and providing customer support for our first product, the G4. As a result, our quarterly and annual operating results may fluctuate significantly as we finalize the development of the G4 and begin or continue these new manufacturing, commercialization and customer support activities, which makes it difficult for us to predict our future operating results. These fluctuations may occur due to a variety of factors, many of which are outside of our control, including but not limited to:

- our ability to successfully manufacture and commercialize the G4 on our anticipated timelines and costs;
- our ability to continue the development and successfully manufacture and commercialize the PX or other products and technologies on our anticipated timelines and costs;
- the timing and cost of, and level of investment in, research and development, manufacturing and commercialization activities relating to our products and technologies, which may change from time to time;
- the level of demand for any products or product enhancements we are able to commercialize, particularly the G4 and our planned PX, which may vary significantly from period to period;
- market acceptance of our products, especially by early adopters and KOLs;
- our ability to drive adoption of our products and technologies, including the G4 and our planned PX, in our target markets and our ability to expand into any future target markets;
- the prices at which we will be able to sell our products and technologies;
- our ability to lower the cost of manufacturing our products and product enhancements;
- the availability and cost of components and raw materials;
- actions taken by our competitors, including new product introductions, pricing changes, product bundling and aggressive marketing practices;
- intellectual property disputes and litigation;
- the outcomes of and related rulings in litigation and administrative proceedings in which we may in the future become involved in;
- the operating performance and financial results of our competitors;
- the volume and mix of our sales between the G4 and our planned PX and other products and technologies, including consumables, or changes in the manufacturing or sales costs related to our products;
- the utilization of our instruments and the volume and mix of the sales of our consumables;
- the length of time of the sales cycle for purchases of our products and technologies, including the G4 and our planned PX;
- the timing and amount of expenditures that we may incur to develop, commercialize or acquire additional products and technologies or for other purposes, such as the expansion of our facilities;
- changes in governmental funding of life sciences research and development or changes that impact budgets or budget cycles;
- the timing of when we recognize any revenue;
- future accounting pronouncements or changes in our accounting policies;
- the outcome of any future governmental investigations involving us, our industry or both;
- higher than anticipated service, replacement and warranty costs;
- the impact of the COVID-19 pandemic on the economy, our business and operations, investment in life sciences and research industries, and resources and operations of our customers, suppliers and distributors;
- general industry, economic and market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors; and
- the other factors described in this “Risk Factors” section.

The cumulative effects of the factors discussed above could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If we are unable to commercialize products or generate revenue, or if our operating results fall below the expectations of analysts or investors or below any guidance we may provide, or if the guidance we provide is below the expectations of analysts or investors, it could cause the market price of our common stock to decline.

We expect to continue to incur substantial operating expenses in the future, which will negatively impact our ability to achieve or maintain profitability.

We have experienced net losses and negative cash flows from operations since our formation in 2016. As of June 30, 2022, we had an accumulated deficit of $197.9 million. Over the next several years, we expect to continue to incur significant expenses as we continue to build our sales and marketing organization, increase our manufacturing and commercialization capabilities, continue our research and development activities and continue the development and enhancement of our products. These efforts may prove to be more costly, or take longer, than we currently anticipate. In addition, as a public company, we have incurred and will incur significant legal, accounting, administrative, insurance and other expenses that we did not incur as a private company. We have not recognized any product revenue to date, and we may never generate revenue sufficient to offset our expenses, or at all. If our revenue does not eventually grow to a level that exceeds our expenses, we will not be able to achieve or maintain profitability. Additionally, we may encounter unexpected development delays, unforeseen expenses, operating delays, declines in revenue or other unknown factors that may result in losses in future periods. If we are unable to achieve and maintain sustained profitability, our business, results of operations, financial condition and prospects will be materially harmed.

The COVID-19 pandemic and efforts to reduce its spread have adversely impacted and may materially and adversely impact our business and operations.

The COVID-19 pandemic has spread worldwide, has caused many governments to implement measures to slow the spread of the outbreak through quarantines, travel restrictions, heightened border scrutiny and other measures. In addition, in response to the COVID-19 pandemic, many state, local and foreign governments have put in place quarantines, executive orders, shelter-in-place orders and similar government orders and restrictions in order to control the spread of the disease. Such orders or restrictions, and the perception that such orders or restrictions could continue or, after being lifted, be reinstated for a period of time, have resulted in business closures, work stoppages, slowdowns and delays, work-from-home policies, travel restrictions and cancellation of events, among other effects that have impacted our business, personnel, personnel at third-party manufacturing facilities and the availability or cost of materials, which would disrupt or delay our receipt of instruments, components and supplies from the third parties we rely on to produce our products.

For instance, there were previously standing “stay-at-home” orders in California, and specifically in San Diego County, where our headquarters is located. We have continued to operate within the rules applicable to our business; however, while most of these mandates have begun to expire, an extended implementation of these governmental mandates or institution of other mandates could further impact our ability to operate effectively and conduct ongoing research and development or other activities. Additionally, we have experienced longer lead times from our suppliers of components used in our product development and manufacturing operations, including due to supply chain challenges currently being experienced generally in the economy. Pandemic precautions and preventative measures may also impact our commercialization plans due to restrictions on our customers’ ability to access laboratories, causing delays in the delivery and installation of our products, training such customers on our products and their ability to conduct research. The ongoing build-out of our new headquarters and manufacturing facilities may also be delayed by COVID-19 related restrictions. The COVID-19 pandemic has also had an adverse effect on our ability to attract, recruit, interview and hire at the pace we would typically expect to support our rapidly expanding operations. To the extent that any governmental authority imposes additional regulatory requirements or re-imposes regulatory requirements or changes existing laws, regulations and policies that apply to our business and operations, such as additional workplace safety measures, our product development plans may be delayed, and we may incur further costs in bringing our business and operations into compliance with new laws, regulations and policies.

In the near term, we expect that a substantial amount of our revenue will be derived from sales of the G4 to academic and research institutions. Our ability to drive the adoption of our products will depend on our ability to visit customer sites to install and train customers on the G4, and the ability of our customers to access laboratories and conduct research in light of the COVID-19 pandemic. While we don’t believe our customers have experienced substantial issues in accessing laboratories to conduct research, we cannot be certain they won’t experience difficulties in the future. Additionally, the research and development budgets of these customers, the ability of such customers to receive funding for research, and the ability of such customers to receive instrument installations and visitors to their facilities and to travel to our facilities, other laboratories and industry events, will become increasingly important to the adoption of the G4. All of these activities have been impacted by the COVID-19 pandemic in multiple ways, such as:

- reductions in capacity or shutdowns of laboratories and other institutions as well as other impacts stemming from the COVID-19 pandemic, such as reduced or delayed spending on instruments or consumables as a result of such delays and shutdowns;
- re-allocation of resources by potential customers toward COVID-19 research, testing or treatment;
- delays in or the inability to obtain supplies and materials used to produce our products;
- decreases in government funding of research and development; and

- changes to programs that provide funding to research laboratories and institutions, including changes in the amount of funds allocated to different areas of research and changes that have the effect of increasing the length of the funding process.

The ultimate impact of the COVID-19 pandemic is highly uncertain and subject to sudden change, despite expiration of most of the mandates and a waning effect of the pandemic. Any future impacts could have a material, adverse impact on our liquidity, capital resources, operations and business and those of the third parties we rely on, and could worsen over time. The extent to which the COVID-19 pandemic impacts our results will depend on future developments, which are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of COVID-19 and the actions to contain COVID-19 or treat its impact, among others. While we do not yet know the full extent of the potential future impacts on our business, any of these occurrences could significantly harm our business, results of operations and financial condition.

Further, the COVID-19 pandemic and its related affects has resulted in, and may continue to result in, extreme volatility and disruptions in the capital and credit markets, reducing our ability to raise additional capital through equity, equity-linked or debt financings, which could negatively impact our short-term and long-term liquidity and our ability to operate in accordance with our operating plan, or at all. Additionally, our results of operations could be adversely affected by general conditions in the global economy and financial markets. A severe or prolonged economic downturn could result in a variety of risks to our business, including weakened demand for our products and technologies and our ability to raise additional capital when needed on favorable terms, if at all. A weak or declining economy could strain our customers' budgets or cause delays in their payments to us. Any of the foregoing could harm our business, and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business, results of operations, financial condition or our ability to raise capital.

Risks Related to the Development and Commercialization of Our Products

Our efforts to manufacture and commercialize the G4 and to finalize the development and commercially launch our planned PX may not be successful.

With respect to the G4, we completed our beta pilot program, have concluded our early access program, and have commercially launched the G4. Although we commenced shipping the G4 in the second quarter of 2022, we have experienced delays in the scale-up of our manufacturing process for initial G4 units and are focusing efforts to improve this process as we continue to commercialize the G4. With respect to our planned PX, we are currently in an advanced prototype development stage for the initial products. We anticipate initiating a technology access program in the second half of 2022 and commercially launching the PX in late 2023. Our commercialization and product development plans may not progress as planned or meet our expected timelines or may not be successful due to:

- the level of customer demand for the G4;
- the ability of our commercial products to regularly meet target specifications;
- our ability to manufacture and ship the G4 efficiently and at sufficient commercial scale to meet demand;
- potential delays in completing development of our planned PX or future products;
- our ability to complete the development and manufacture our planned PX;
- our inability to establish the capabilities and value proposition of our products with KOLs and early adopters in a timely fashion, including through information included in scientific publications and presentations;
- our inability to establish broad scientific acceptance of our products;
- potential litigation brought by our competitors against our products, technology or intellectual property;
- the continued effect and lasting impact of the COVID-19 pandemic;
- our inability to overcome the long-term relationships, including exclusive agreements, that our competitors have established with our target customers;
- actions taken by our competitors, including new product introductions and the ability to offer significant discounts and to bundle products and services to our target customers;
- our customers' willingness and ability to adopt new products and workflows, including in light of commercial pressures applied by our competitors and pre-existing long-term contracts with our competitors;
- our ability to demonstrate that the G4 and our planned PX provide meaningful advantages over competing products and technologies;
- the prices we charge for the G4 and planned PX and other products and technologies;

- our ability to develop new products and workflows and solutions for customers, and the impact of our investments in product innovation and commercial growth;
- our ability to provide service and maintain the products we have sold;
- changing industry or market conditions, customer expectations or requirements;
- delays in building out our sales, customer support and marketing organization as needed for our commercial launch plans; and
- delays in ramping up manufacturing, including obtaining required materials and components from third-party suppliers, to meet expected or actual demand for our products.

We cannot assure you that we will be successful in addressing each of the risks and uncertainties that might affect the development and market acceptance of any products we commercialize. Initial negative perception of the G4 by customers could irreparably damage our reputation and ability to successfully commercialize the G4 or our planned PX or future products. In addition, as we continue to commercialize the G4 we will also need to continue to make corresponding improvements to other operational functions, such as our customer support, service and billing systems, compliance programs and our internal quality assurance programs. We cannot assure you that any increases in scale, required manufacturing improvements and quality assurance will be successfully implemented or that appropriate personnel will be available. To the extent any of our commercial plans and related activities are delayed, unsuccessful or more expensive than we currently anticipate, our financial results may be adversely impacted and we may never generate sufficient revenue to achieve and maintain profitability.

If we are unable to establish sales and marketing capabilities, we may not be successful in commercializing the G4 or our planned PX.

We have limited experience commercializing our products, and our ability to achieve profitability depends on being able to successfully commercialize the G4 and our planned PX. Although members of our management team have considerable industry experience, we are in the process of expanding our sales, marketing, distribution and customer service and support capabilities with the appropriate technical expertise. To perform sales, marketing, distribution, and customer service and support successfully, we will face a number of risks, including:

- our ability to attract, train, retain and manage the sales, marketing and customer service and support force necessary to commercialize and gain market acceptance for our products and train and support our customers in the use of our systems;
- our ability to adopt successful marketing and pricing strategies;
- the time and cost of establishing a specialized sales, marketing and customer service and support force; and
- our sales, marketing and customer service and support force may be unable to initiate and execute successful commercialization activities.

We may seek to enlist one or more third parties to assist with sales, distribution and customer service and support globally or in certain regions of the world. There is no guarantee, if we do seek to enter into such arrangements, that we will be successful in attracting desirable sales and distribution partners or that we will be able to enter into such arrangements on favorable terms. If our sales and marketing efforts, or those of any third-party sales and distribution partners, are not successful, the G4 or our planned PX may not gain market acceptance, which could materially impact our business and results of operations.

Our products could fail to achieve key performance metrics we are targeting and our prospects could be harmed.

We believe our Sequencing Engine can impart commercially marketable capabilities to our products, including power, speed, flexibility and accuracy. To successfully commercialize our products, we are targeting certain performance metrics, including cycle times for each base, accuracy for base reads, quality scores and the number of independent flow cells that can run concurrently. If our Sequencing Engine or our products are unable to meet and to consistently achieve key performance metrics, including once commercially deployed, or, if the data supporting our preliminary achievement of certain key performance metrics are incorrect or not viewed favorably by KOLs or potential customers, demand for the G4 and planned PX may not develop as anticipated, which could adversely affect our revenue and our results of operations.

If we fail to continue to expand the capabilities of the G4 and complete the development of the PX, our revenue and our prospects could be harmed.

We completed our beta pilot program, have concluded our early access program, and have commercially launched the G4. Although we commenced shipping the G4 in the second quarter of 2022, we have experienced delays in the scale-up of our manufacturing process for initial G4 units and are focusing efforts to improve this process as we continue to commercialize the G4. We are working to expand the capabilities of the G4 by providing novel kits for targeted applications. Any delay or failure by us to successfully develop and release these enhancements could have a substantial adverse effect on our business and results of operations.

Our planned PX is in the development phase, and is subject to all the risks and uncertainties associated with product development of highly complex and novel life sciences instruments. We have not met a number of technical and performance metrics that we believe will be necessary to achieve prior to commercialization. If we do not achieve the required technical specifications and performance metrics for our planned PX or if development work is not performed according to our planned schedule, then we may not be successful in finalizing our planned PX and its commercial launch may be adversely affected, delayed or not occur at all. Additionally, our planned PX could be subject to redesign or further improvements, and result in delays in finalizing development and commencing commercialization, after feedback from beta collaborators and KOLs. Any delay or failure by us to successfully develop, release, commercialize and maintain the PX could have a substantial adverse effect on our business and results of operations.

If we fail to continue to improve our planned products or, introduce compelling new products, product enhancements or product configurations, our revenue and our prospects could be harmed.

Our ability to attract customers and earn revenue will depend in large part on our ability to continue to enhance and improve our products and to introduce compelling new products and product capabilities. The success of any enhancements to the G4 or our planned PX, or the introduction of any new products and product capabilities depends on several factors, including timely completion and delivery of such enhancements and products, competitive pricing, adequate quality testing, integration with existing products and technologies, appropriately timed and staged introduction, overall market acceptance and our ability to properly manufacture, service and maintain these products. Any new products or enhancements that we develop may not be introduced in a timely or cost effective manner, may contain defects, errors, vulnerabilities or bugs, or may not achieve the market acceptance necessary to increase our revenue and improve our operating results. Further, if we are unable to successfully develop any new products, enhance the capabilities of our existing products to meet evolving customer requirements and demands, compete with alternative products and technologies, or otherwise gain and maintain market acceptance, our business, results of operations and financial condition could be harmed.

The sizes of the markets for our products and technologies may be smaller or grow slower than we estimate, and new markets may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our products.

The market for NGS, single-cell, spatial and proteomics products and technologies is evolving, making it difficult to predict with any accuracy the market opportunity for our current and future products and technologies. Our estimates of the total addressable market for our current and future products and technologies are based on a number of internal and third-party estimates and assumptions. In particular, while we believe that our target markets may be underserved by existing genomics products and technologies and that our target customers will recognize the value proposition offered by our products, we cannot be certain that our target customers will recognize enough value from our products to purchase our products in place of, or in addition to, tools and technologies they already use. Further, we cannot be certain that our target customers will view our products as competitive alternatives to existing tools and technologies in our target markets, especially given that our competitors have long relationships, including exclusive arrangements, with our target customers and may be able to offer significant discounts and/or buddle products or offerings to our target customers.

While we believe our assumptions and the data underlying our estimates of the total annual addressable market for our products and technologies are reasonable, these assumptions and estimates may not be correct and the conditions supporting our assumptions or estimates, or those underlying the third-party data we have used, may change at any time, thereby reducing the accuracy of our estimates. As a result, our estimates of the annual total addressable market for our products and technologies may be incorrect. Further, the future growth of the market for our current and future products depends on many factors beyond our control, and if the markets for our current and future products are smaller than estimated or do not develop as we expect, our growth may be limited and our business, financial condition and operational results of operations could be adversely affected.

We expect to commercialize the G4 and our planned PX outside of the United States, which could expose us to business, regulatory, political, operational, financial and economic risks associated with doing business outside of the United States.

Engaging in international business inherently involves a number of difficulties and risks, including:

- required compliance with existing and changing foreign regulatory requirements and laws that are or may be applicable to our business in the future, such as the European Union's ("EU") General Data Protection Regulation ("GDPR") and other data privacy requirements, labor and employment regulations, anti-competition regulations, the U.K. Bribery Act

of 2010 and other anti-corruption laws, regulations relating to the use of certain hazardous substances or chemicals in commercial products, and require the collection, reuse, and recycling of waste from products we manufacture;

- required compliance with U.S. laws such as the Foreign Corrupt Practices Act, and other U.S. federal laws and regulations established by the office of Foreign Asset Control;
- export requirements and import or trade restrictions;
- laws and business practices favoring local companies;
- foreign currency exchange, longer payment cycles and difficulties in enforcing agreements and collecting receivables through certain foreign legal systems;
- changes in social, economic, and political conditions or in laws, regulations and policies governing foreign trade, manufacturing, research and development, and investment both domestically as well as in the other countries and jurisdictions in which we operate and into which we may sell our products including as a result of the separation of the United Kingdom from the European Union ("Brexit");
- potentially adverse tax consequences, tariffs, customs charges, bureaucratic requirements and other trade barriers;
- difficulties and costs of staffing and managing foreign operations; and
- difficulties protecting, maintaining, enforcing or procuring intellectual property rights.

If one or more of these risks occurs, it could require us to dedicate significant resources to remedy such occurrence, and if we are unsuccessful in finding a solution, our financial results will suffer.

Risks Related to Our Financial Position and Need for Additional Capital

We may require substantial additional funding, which may not be available to us on acceptable terms, or at all, and, if not available, may require us to delay, scale back or cease our product development or commercialization activities.

Based on our current plans, we believe that our current cash and cash equivalents, short-term investments and anticipated cash flow from operations, if any, will be sufficient to: (i) meet our anticipated cash requirements for at least 12 months from the date of this report; and (ii) to commercialize the G4 and complete the development of our planned PX. If our available cash resources and anticipated cash flows from operations, if any, are insufficient to satisfy our liquidity requirements, we may be required to raise significant additional capital to support our continued operations and the implementation of our business plans. Our future funding requirements will depend on many factors, including but not limited to:

- our rate of progress in commercializing and scaling the manufacturing of the G4;
- the costs of the sales and marketing activities associated with establishing adoption of the G4;
- the effect of competing technological and market developments, including any requirement to provide discounts for the G4 because of competitive pressures;
- litigation expenses we incur to defend against claims, including claims that we infringe the intellectual property of others or judgments we must pay to satisfy such claims;
- contractual obligations to third parties;
- our rate of progress in developing, launching and commercializing our planned PX and any new products or product enhancements we pursue;
- our ability to control our manufacturing and operating costs;
- our ability to satisfy our outstanding debt obligations; and
- the costs of responding to the other risks and uncertainties described in this report.

We may also be required to raise additional capital in the future to expand our business and operations to pursue strategic investments or for other reasons, including but not limited to:

- increasing our sales and marketing and other commercialization efforts to drive market adoption of the G4;
- commercializing our planned PX;
- scaling up our manufacturing and customer support capabilities;
- funding development and marketing efforts of our other future products and product enhancements;
- expanding our technologies into additional markets;
- acquiring, licensing or investing in technologies and other intellectual property rights;
- acquiring or investing in complementary businesses or assets; and
- financing capital expenditures and general and administrative expenses.

We may seek required funding through issuances of equity or convertible debt securities, entering into additional loan facilities or drawing down additional funds under our 2021 SVB Loan. Each of the various ways we could raise additional capital carry potential risks. If we raise funds by issuing equity securities, dilution to our stockholders would result. If we raise funds by issuing additional debt securities, those debt securities would have rights, preferences and privileges senior to those of holders of our common stock. Our 2021 SVB Loan restricts our ability to pursue certain transactions that we may believe to be in our best interest, including incurring additional indebtedness without the prior written consent of the lender under the 2021 SVB Loan. If we raise funds through collaborations or licensing arrangements, we might be required to relinquish significant rights to our technologies or products or grant licenses on terms that are not favorable to us.

If we are unable to obtain adequate financing or financing on terms satisfactory to us, if we require it, our ability to continue to pursue our business objectives and to respond to business opportunities, challenges, or unforeseen circumstances could be significantly limited and could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our results of operations could be materially harmed if we are unable to accurately forecast customer demand for the G4, our planned PX if and once developed and commercialized, and any other future products and product enhancements we elect to pursue.

To ensure adequate supply of the G4 to meet demand, we must forecast our future inventory needs and appropriately scale-up our manufacturing operations and personnel. We must also place orders with our third-party suppliers based on such forecasts. Our ability to accurately forecast demand for the G4 could be negatively affected by many factors, including: our ability to timely scale our manufacturing operations and capabilities; the success of our sales and marketing activities; customer acceptance of the G4; and potential adverse impacts as a result of COVID-19, including supply delays and shortages. These same risks and uncertainties will also apply to our planned PX and any other future products and product enhancements we elect to pursue.

Inventory levels in excess of customer demand may result in inventory write-downs or write-offs, which would cause our gross margin to be adversely affected and could impair the strength of our brand. Similarly, a portion of our inventory could become obsolete or expire, which could have a material and adverse effect on our earnings and cash flows due to the resulting costs associated with inventory impairment charges and costs required to replace obsolete inventory. Any of these occurrences could negatively impact our financial performance.

Conversely, if we underestimate customer demand for the G4, our planned PX or any other future products and product enhancements we elect to pursue, we may not be able to deliver sufficient products to meet our customer requirements, which could result in damage to our reputation and customer relationships. In addition, if we experience a significant increase in demand, we may not be able to increase our manufacturing capacity on a timely basis. Further, we may not be able to obtain the components for our products when required on terms that are acceptable to us, or at all, which could have an adverse effect on our ability to meet customer demand and harm our business and results of operations.

Our existing indebtedness may limit our flexibility in financing and operating our business and adversely affect our business, financial condition and results of operations.

As of June 30, 2022, there was $10.5 million of principal owed under our 2021 SVB Loan. In addition to this outstanding amount, we may borrow substantial funds in the future to provide a portion of the capital needed in our business and may secure the repayment of such borrowings by placing additional liens or other encumbrances on our assets. Our 2021 SVB Loan contains customary conditions to borrowing, events of default and affirmative and negative covenants, including covenants that restrict our ability (and the ability of certain of our subsidiaries) to incur additional indebtedness, grant liens, make certain fundamental changes and asset sales, pay dividends or make other distributions to holders of our stock, make investments or engage in transactions with our affiliates. Such restrictions could limit our ability to take certain actions could reduce our flexibility to run and manage our business which could have an adverse effect on our results of operations. The obligations under the 2021 SVB Loan are also secured by liens on substantially all of our assets, excluding our intellectual property on which there is a negative pledge, subject to customary exceptions. If we were unable to repay amounts due under the 2021 SVB Loan, Silicon Valley Bank could proceed against such assets. Any declaration by Silicon Valley Bank of an event of default could significantly harm our business and prospects and could cause the price of our common shares to decline.

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

We have incurred substantial losses during our history, which we expect to continue for the foreseeable future, and we may never achieve profitability. As of December 31, 2021, we had federal and California tax loss carryforwards of approximately $99.1 million and $96.0 million, respectively. As of December 31, 2021, we had federal and state tax credit carry forwards of approximately $3.8 million and $3.8 million, respectively. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, (the "Code"), if a corporation undergoes an "ownership change," generally defined as a greater than 50 percentage point change (by value) in its equity ownership by certain stockholders over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards ("NOLs"), and other pre-change tax attributes (such as research tax credits) to offset its post-change income or taxes may be limited. We have not yet completed an ownership change analysis. If a requisite ownership change occurs, the amount of remaining tax attribute carryforwards available to offset taxable income and reduce income tax expense in future years may be restricted or eliminated. Similar provisions of state tax law may also apply to limit our use of accumulated state tax attributes. In addition, at the state level, there may be periods during which the use of NOLs is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. As a result, even if we attain profitability, we may be unable to use a material portion of our NOLs and other tax attributes based on restrictions in the Code, which could adversely affect our future cash flows and results of operations.

U.S. federal income tax reform and the implementation of such reforms could adversely affect us.

On December 22, 2017, the United States enacted the Tax Cuts and Jobs Act (the "TCJA") that significantly reformed the Code. The TCJA, among other things, contained significant changes to corporate taxation, including a reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, the limitation of the tax deduction for net interest expense to 30% of adjusted earnings (except for certain small businesses), the limitation of the deduction for NOLs arising in taxable years beginning after December 31, 2017 to 80% of current year taxable income and elimination of NOL carrybacks for losses arising in taxable years ending after December 31, 2017 (though any such NOLs may be carried forward indefinitely), the imposition of a one-time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, the elimination of U.S. tax on foreign earnings (subject to certain important exceptions), the allowance of immediate deductions for certain new investments instead of deductions for depreciation expense over time, and the modification or repeal of many business deductions and credits. The financial statements contained herein reflect the effects of the TCJA based on current guidance. However, there remain uncertainties and ambiguities in the application of certain provisions of the TCJA, and, as a result, we made certain judgments and assumptions in the interpretation thereof.

As part of Congress's response to the COVID-19 pandemic, the Families First Coronavirus Response Act (the "FFCR Act"), was enacted on March 18, 2020, and the Coronavirus Aid, Relief, and Economic Security Act, (the "CARES Act"), was enacted on March 27, 2020. Both contain numerous tax provisions. In particular, the CARES Act retroactively and temporarily (for taxable years beginning before January 1, 2021) suspends application of the 80%-of-income limitation on the use of NOLs, which was enacted as part of the TCJA. It also provides that NOLs arising in any taxable year beginning after December 31, 2017 and before January 1, 2021 are generally eligible to be carried back up to five years. The CARES Act also temporarily (for taxable years beginning in 2019 or 2020) relaxes the limitation of the tax deductibility for net interest expense by increasing the limitation from 30% to 50% of adjusted taxable income.

Risks Related to Manufacturing Our Products

We may be unable to manufacture the G4 to meet our commercialization plans on a timely or cost effective basis.

We must successfully increase our manufacturing output to meet our long-term commercialization plans. We currently manufacture the G4 in our facilities in San Diego, California. We have leased and are currently building out a new manufacturing facility at a new location in La Jolla, California to support our growth and commercialization plans. In order to manufacture sufficient G4 instruments and consumables to meet our commercialization plans, we will need to hire and train a sufficient number of manufacturing, engineering and quality personnel. Manufacturing the G4 requires complex processes, and depends on the skill and experience of our manufacturing personnel. The manufacturing process for the G4 also includes sourcing components from various third-party suppliers and then assembling and testing the final product offerings. We must manufacture the G4 in compliance with our demanding specifications in a timely and efficient manner and at an acceptable cost in order to achieve and maintain profitability. We have a limited history of manufacturing and assembling the G4, and, as a result, we may have difficulty manufacturing and assembling sufficient quantities of such products in a timely and cost-effective manner. For example, in producing our first commercial units of the G4, we have experienced delays in the scale-up of our manufacturing process and we are currently focusing our efforts to improve this process as we continue to manufacture the G4. In addition, to manage our manufacturing operations and the supply of components from our third-party suppliers, we will need to forecast anticipated demand to predict our inventory needs from six months to a year in advance and enter into purchase orders on the basis of these requirements. Our limited manufacturing history may not provide us with enough data to allow us to accurately and effectively predict our manufacturing capacity requirements or our need for components from our third-party suppliers, including appropriately anticipating supply shortages or unavailability and fluctuations in the pricing of required components. We may experience delays in obtaining components required for the G4, including due to recent supply chain challenges being experienced in the economy generally, or not have sufficient manufacturing capabilities and personnel for such products, which could impede our ability to manufacture and assemble these products on our expected timeline. As a result of this or any other delays, we may encounter difficulties in production of the G4, including problems with quality control and assurance, component supply shortages or surpluses, increased costs, shortages of qualified personnel and difficulties associated with compliance with local, state, federal and foreign regulatory requirements. Our costs may also significantly increase as a result of inflation, and we may not be able to offset those higher costs by increasing our prices to our customers to the extent we have generated sales. Our operating costs have increased, and may continue to increase, due to the recent growth in inflation, which could have an adverse effect on our results of operation and financial condition.

We are dependent on single source suppliers for some components to our consumables and the loss of any of these suppliers could harm our business.

We do not have long-term contracts with third-party suppliers from whom we obtain some components to manufacture the G4 . We are, therefore, subject to the risk that these third-party suppliers will not continue to provide us with components that meet our specifications, quality standards and delivery schedules. Factors that could impact our suppliers' willingness and ability to continue to provide us with the required components include disruption at or affecting our suppliers' facilities, such as work stoppages or natural disasters, demand for and availability of raw materials and subcomponents, adverse weather or other conditions that affect their supply, the financial condition of our suppliers and deterioration in our relationships with these suppliers. In addition, we cannot be sure that we will be able to obtain these components on satisfactory terms. Any increase in component costs could reduce any potential future sales and harm our gross margins.

While we have qualified second sources for several of our critical components, including flow cells, optics and oligonucleotides, we do not have qualified secondary sources for all components that we source through a single supplier and we cannot assure investors that the qualification of a secondary supplier will prevent future supply issues. Disruption in the supply of materials or components would impair our ability to sell our products and meet customer demand, and also could delay the launch of new products, any of which could harm our business and results of operations. If we were to have to change suppliers, the new supplier may not be able to provide us components in a timely manner and in adequate quantities that are consistent with our quality standards and on satisfactory pricing terms. In addition, alternative sources of supply may not be available for components for which there are a limited number of suppliers which could result in a requirement to redesign certain aspects of our products. Further, supply shortages could require us to redesign our products to be compatible with components that are more readily available, which could lead to manufacturing and commercialization delays.

We have limited experience manufacturing the G4, and we may be unable to consistently manufacture or supply the G4 to the necessary specifications or in quantities necessary to meet demand on a timely basis and at acceptable performance and cost levels.

The G4 is a complex product with many different components that must work together to obtain the desired results. As such, a quality defect in a single component can compromise the performance of the entire product. In order to successfully generate revenue from the G4, we need to supply our customers with products that meet their expectations for quality and functionality in accordance with established specifications on a timely basis. Given the complexity of the G4, individual G4 units may require additional installation and service time prior to becoming available for customer use and we may be required to replace lots of reagents or consumables.

We manufacture the G4 at our existing facilities in San Diego, California. We procure certain components of the G4 from third-party suppliers, which include both commonly available raw materials and custom components. Many of these manufacturing processes are complex. For example, in producing our first commercial units of the G4, we have experienced delays in the scale-up of our manufacturing process and we are currently focusing our efforts to improve this process as we continue to manufacture the G4. If we are not able to repeatedly produce the G4 at commercial scale and source required components from third-party suppliers, our business will be adversely impacted.

We have limited manufacturing experience and there is no assurance that we will be able to manufacture our products so that they repeatedly provide accurate results consistent with product specifications. Further, our consumables have a limited shelf life, after which their performance is not ensured. Shipment of consumables that effectively expire early or shipment of defective instruments or consumables to customers may result in recalls and warranty replacements, which would increase our costs, and depending upon our inventory levels and the availability and lead time for additional inventory, could lead to availability issues. As we develop additional products, we may need to bring new equipment on-line, implement new systems, technology, controls and procedures and hire personnel with different qualifications. Any future design issues, unforeseen manufacturing problems, equipment malfunctions, aging components, quality issues with components and materials sourced from third-party suppliers, or failures to strictly follow procedures or meet specifications, may have a material adverse effect on our brand, business, results of operations and financial condition.

The G4 could have defects or errors, which may give rise to claims against us, adversely affect market adoption and adversely affect our business, financial condition, and results of operations.

The G4 utilizes novel and complex technologies and may develop or contain undetected defects or errors. We cannot assure you that material performance problems, defects, or errors will not arise, and as we commercialize our products, these risks may increase. We provide and expect to continue to provide warranties that our products will meet performance expectations and will be free from defects. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins.

In manufacturing the G4, we depend on third parties for the supply of various components, many of which require a significant degree of technical expertise to produce. If our suppliers fail to produce our components to specification or provide defective products to us and our quality control tests and procedures fail to detect such errors or defects, or if we or our suppliers use defective materials or workmanship in the manufacturing process, the reliability and performance of our products will be compromised.

If the G4 contains defects, we may experience:

- a failure to achieve market acceptance for our products or increased sales;
- loss of customer orders or delays in order fulfillment;
- damage to our brand reputation;
- increased warranty and customer service and support costs due to product repair or replacement;
- product recalls or replacements;
- inability to attract new customers or gain market acceptance;
- diversion of resources from our manufacturing and research and development departments into our service department; and
- legal claims against us, including product liability claims, which could be costly and time consuming to defend and result in substantial damages.

In addition, we expect that the G4 will be used with our customers' and potential customers' own lab equipment and third-party products, and the performance of such equipment and products is outside of our control. If our customers' equipment or the third-party products they utilize are not produced to specification, are produced in accordance with modified specifications, or are defective, they may not be compatible with or perform as intended with the G4. In such case, the reliability, results and performance of the G4 may be compromised. The occurrence of any one or more of the foregoing could negatively affect our business, financial condition and results of operations. Additionally, we expect that we will need to train our customers on properly using the G4. If we are unable to adequately train our customers to use the G4 or they fail to follow our training and protocols we have established, the performance of the G4 may be compromised.

Our ability to achieve profitability will depend, in part, on our ability to reduce the per unit manufacturing costs of the G4.

To achieve our operating and strategic goals, we will need to, among other things, reduce the per unit manufacturing cost of the G4. Manufacturing the G4 involves complex processes, and depend on the skills and experience of our manufacturing personnel. In producing our first commercial units of the G4, we have experienced delays in the scale-up of our manufacturing process and we are currently focusing our efforts to improve this process as we continue to manufacture the G4. We may continue to experience delays or low manufacturing yields for the G4. In addition, we will need to continually focus on reducing the per unit manufacturing cost of the G4, which cannot be achieved without increasing the volume of components that we purchase in order to take advantage of volume-based pricing discounts, improving our manufacturing efficiency or increasing our volumes to leverage manufacturing overhead costs. If we are unable to improve our manufacturing efficiency and reduce our manufacturing overhead costs per unit, our ability to achieve profitability will be severely constrained. Any increase in manufacturing volumes is dependent upon a corresponding increase in sales. Our costs may also significantly increase as a result of inflation, and we may not be able to offset those higher costs by increasing our prices to our customers. The occurrence of one or more factors that negatively impact the manufacturing or sales of the G4 or reduce our manufacturing efficiency may prevent us from achieving our desired reduction in manufacturing costs, which would negatively affect our operating results and may prevent us from attaining profitability.

If our facilities or our third-party suppliers' facilities become unavailable or inoperable, our research and development program and commercialization launch plan could be adversely impacted and manufacturing of the G4 could be interrupted.

Our existing facilities in San Diego, California house our corporate, research and development, manufacturing, sales and marketing, customer support and quality assurance teams. Our facilities and those of our third-party suppliers are vulnerable to natural disasters, public health crises, including the impact of the COVID-19 pandemic, civil unrest, wars and other catastrophic events. For example, our San Diego facilities are located near earthquake fault zones and are vulnerable to damage from earthquakes as well as other types of disasters, including fires, floods, power loss, communications failures and similar events. If any disaster, any new or continuing public health crisis or catastrophic event were to occur, our ability to operate our business would be seriously, or potentially completely, impaired. If our facilities or our third-party suppliers' facilities become unavailable for any reason, we cannot provide assurances that we will be able to secure alternative facilities with the necessary capabilities and equipment or alternative suppliers on acceptable terms, if at all. We may encounter particular difficulties in replacing our San Diego facilities given the specialized equipment housed within it. The inability to manufacture the G4, combined with our limited inventory of such manufactured products, may result in the loss of future customers or harm our reputation, and we may be unable to re-establish relationships with those customers in the future. Because our consumables are perishable and must be kept in temperature controlled storage, the loss of power to our facilities, mechanical or other issues with our storage facilities or other events that impact our temperature controlled storage could result in the loss of some or all of such products, and we may not be able to replace them without disruption to our customers or at all.

If our business operations are disrupted by a disaster, war or other catastrophe, the launch of the G4 and our planned PX, and the timing of improvements to such products could be significantly delayed and could adversely impact our ability to compete with other available products and solutions. If our or our third-party suppliers' capabilities are impaired, we may not be able to manufacture and ship our products in a timely manner, which would adversely impact our business. Although we possess insurance for damage to our property and the disruption of our business, this insurance may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, or at all.

The costs to maintain and provide customer support for the G4, and any future products or product enhancements that we commercialize, may exceed our expectations.

As we continue to commercialize the G4, we are building a commercial organization and infrastructure to support the following activities:

- installing the G4 in customer locations;
- training customers on the use of the G4;
- providing customer support services; and
- providing maintenance, repair and warranty services.

We may not be successful in developing the organization or commercial infrastructure necessary to provide these customer support activities in a timely manner to meet commercial demand and on a cost effective basis. Any failure to provide our customers with a superior customer experience, to timely respond to their requests and questions and to provide maintenance and warranty services, may adversely affect our brand and our results of operations.

Risks Related to Our Planned Growth

If we do not successfully manage our current and anticipated growth, our business and prospects will be harmed.

From December 31, 2021 to June 30, 2022, the number of our full-time employees increased from 221 to 248. Since that time, we have continued to increase our employee headcount and expand our operations and expect to continue to do so as we commercialize the G4 and develop the PX. Our recent growth has placed significant strains on our management, financial systems and internal controls. We expect that the growth associated with the commercial launch of the G4 and the development and commercial launch of our planned PX will also strain our operational and manufacturing systems and processes, sales and marketing team, financial systems and internal controls and other aspects of our business. Commercializing the G4, and continuing to develop our planned PX, will require us to hire and retain scientific, sales and marketing, software, manufacturing, customer service and quality assurance personnel. In addition, we expect that we will need to hire additional accounting, finance and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company. As a public company, our management and other personnel devote a substantial amount of time towards maintaining compliance with these requirements and effectively manage these growth activities. We have faced challenges integrating, developing and motivating our rapidly growing employee base, especially during the COVID-19 pandemic, and may continue to face related challenges as we continue to grow. To effectively manage our growth, we must continue to improve our operational and manufacturing systems and processes, our financial systems and internal controls and other aspects of our business and continue to effectively expand, train and manage our personnel in a virtual environment during the COVID-19 pandemic and related governmental work from home mandates. Our ability to successfully manage our expected growth is uncertain given the fact that we have been in operation only since 2016. As our organization continues to grow, we will be required to implement more complex organizational management structures, and may find it increasingly difficult to maintain the benefits of our corporate culture, including our ability to quickly develop and launch new and innovative products and technologies. If we do not successfully manage our anticipated growth, our business, results of operations, financial condition and prospects will be harmed.

We depend on our senior management team, and the loss of one or more of our key employees or an inability to attract and retain highly skilled employees, particularly in this highly competitive labor market, will negatively affect our business, financial condition and results of operations.

Our future success depends upon our ability to recruit, train, retain and motivate our senior management team and our other highly qualified personnel. Our senior management team, including Andrew Spaventa, our founder, Chief Executive Officer and Chairperson of the Board, and Eli Glezer, our founder and Chief Scientific Officer, is critical to our vision, strategic direction, product development and commercialization efforts. The departure of one or more of these individuals or any of our other executive officers, senior management team members, or other key employees could be disruptive to our business until we are able to hire qualified successors. We do not have long-term employment contracts or maintain “key man” life insurance on our senior management team.

Our continued growth and ability to successfully transition from a company primarily focused on research and development to commercialization depends, in part, on attracting, retaining and motivating qualified personnel, including highly-trained sales and marketing personnel with the necessary scientific background and ability to understand our products at a technical level to effectively identify, market and sell to potential new customers. New hires will require significant training and, in most cases, take significant time before they achieve full productivity. Our failure to successfully integrate these key personnel into our business could adversely affect our business. In addition, competition for qualified personnel in the life sciences space is intense and has recently become even more intense, particularly in the San Diego metropolitan area. Recently, the labor market to retain and replace highly skilled personnel has become even more competitive. We compete for qualified scientific and information technology personnel with other life science and information technology companies as well as academic institutions and research institutions. Some of our scientific personnel are qualified foreign nationals whose ability to live and work in the United States is contingent upon the continued availability of appropriate visas. Due to the competition for qualified personnel, particularly in the current labor market and in the San Diego metropolitan area, we expect to continue to utilize foreign nationals to fill part of our recruiting needs. As a result, changes to United States immigration policies could restrain the flow of technical and professional talent into the United States and may inhibit our ability to hire qualified personnel.

We do not maintain fixed term employment contracts with any of our employees, including the members of our senior management team. As a result, our executives and other key employees could leave our company with little or no prior notice and would be free to work for a competitor. The failure to properly manage succession plans, develop leadership talent or replace the loss of services of senior management or other key employees and qualified personnel, could significantly delay or prevent the achievement of our objectives.

We may acquire or invest in other companies or technologies, which could divert our management's attention, result in additional dilution to our stockholders and otherwise disrupt our operations and harm our operating results.

We may in the future seek to acquire or invest in businesses, applications or technologies that we believe could complement or expand the G4, our planned PX or any other future products and product enhancements we elect to pursue. We may also pursue acquisitions or investments to expand our technical capabilities or otherwise offer growth opportunities. The pursuit of potential acquisitions or investments may divert the attention of management and cause us to incur various costs and expenses in identifying, investigating and pursuing suitable acquisitions or investments, whether or not they are consummated. We may not be able to identify desirable acquisition targets or be successful in entering into an agreement with any particular target or obtain the expected benefits of any acquisition or investment.

To date, the growth of our operations has been organic, and we have limited experience in acquiring or investing in other businesses or technologies. We may not be able to successfully integrate acquired personnel, operations and technologies, or effectively manage the combined business following an acquisition. Acquisitions could also result in dilutive issuances of equity securities, the use of our available cash, or the incurrence of debt, which could harm our operating results. In addition, if an acquired business fails to meet our expectations, our operating results, business and financial condition may suffer. Also, our 2021 SVB Loan may restrict our ability to pursue certain mergers, acquisitions, amalgamations or consolidations without obtaining the prior consent of Silicon Valley Bank or repaying our outstanding loan amounts. Additionally, future acquisitions or investments could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities or amortization expenses or write-offs of goodwill, any of which could harm our financial condition.

If we experience a disruption in our information technology systems or breaches of data security, our business could be adversely affected.

We rely on information technology systems to keep financial records, facilitate our research and development initiatives, manage our manufacturing operations, maintain quality control, fulfill customer orders, maintain corporate records, communicate with staff and external parties and operate other critical functions. Our information technology systems and those of our vendors and partners are potentially vulnerable to disruption due to breakdown, malicious intrusion and computer viruses or other disruptive events, including, but not limited to, natural disasters and catastrophes. Cyberattacks and other malicious internet-based activity continue to increase and cloud-based platform providers of services have been and are expected to continue to be targeted. Methods of attacks on information technology systems and data security breaches change frequently, are increasingly complex and sophisticated, including social engineering and phishing scams, and can originate from a wide variety of sources. In addition to traditional computer "hackers," malicious code, such as viruses and worms, stolen or fraudulently obtained log-in credentials, employee errors, actions, inaction, theft, or misuse, and denial-of-service attacks, there are sophisticated nation-state and nation-state supported actors that now engage in attacks, including advanced persistent threat intrusions. Our information technology and data security procedures continue to evolve and therefore, our information technology systems may be more susceptible to cybersecurity attacks. Despite any of our current or future efforts to protect against cybersecurity attacks and data security breaches, there is no guarantee that our efforts are adequate to safeguard against all such attacks and breaches. Moreover, it is possible that we may not be able to anticipate, detect, appropriately react and respond to, or implement effective preventative measures against, all cybersecurity incidents.

If our security measures, or those of our vendors and partners, are compromised due to any cybersecurity attacks or data security breaches, our business and reputation may be harmed, we could become subject to litigation and we could incur significant liability. If we were to experience a prolonged system disruption in our information technology systems or those of certain of our vendors and partners, it could negatively impact our ability to serve our customers, which could adversely impact our business, financial condition, results of operations and prospects. If operations at our facilities were disrupted, it may cause a material disruption in our business if we are not capable of restoring functionality in an acceptable timeframe. In addition, our information technology systems, and those of our vendors and partners, are potentially vulnerable to data security breaches and supply chain attacks, whether by internal bad actors, such as employees or other third parties with legitimate access to our or our third-party providers' systems, or external bad actors, which could lead to the exposure of personal data, sensitive data and confidential information to unauthorized persons. Further, due to the political uncertainty involving Russia and Ukraine resulting from Russia's invasion of Ukraine, there is also an increased likelihood that escalation of tensions could result in cyber-attacks or cybersecurity incidents that could either directly or indirectly impact our operations. Any such data security breaches or cyber-attacks could lead to the loss of trade secrets or other intellectual property, or could lead to the exposure of personal information, including sensitive personal information, of our employees, customers and others, any of which could have a material adverse effect on our business, reputation, financial condition and results of operations.

In addition, any such access, disclosure or other loss or unauthorized use of information or data could result in legal claims or proceedings, regulatory investigations or actions, and other types of liability under laws that protect the privacy and security of personal information, including federal, state and foreign data protection and privacy regulations, violations of which could result in significant penalties and fines. Furthermore, defending a suit, regardless of its merit, could be costly, divert management's attention and harm our reputation. In addition, although we seek to detect and investigate all data security incidents, security breaches and other incidents of unauthorized access to our information technology systems and data can be difficult to detect and any delay in identifying such breaches or incidents may lead to increased harm and legal exposure of the type described above. Moreover, there could be public announcements regarding any cybersecurity incidents and any steps we take to respond to or remediate such incidents, and if securities analysts or investors perceive these announcements to be negative, it could, among other things, have a material adverse effect on the price of our common stock.

The cost of protecting against, investigating, mitigating and responding to potential breaches of our information technology systems and data security breaches and complying with applicable breach notification obligations to individuals, regulators, partners and others can be significant. As cybersecurity incidents continue to evolve, we may be required to expend significant additional resources to continue to modify or enhance our protective measures or to investigate and remediate any information security vulnerabilities. The inability to implement, maintain and upgrade adequate safeguards could have a material adverse effect on our business, financial condition, results of operations and prospects. Our insurance policies may not be adequate to compensate us for the potential costs and other losses arising from such disruptions, failures or security breaches. In addition, such insurance may not be available to us in the future on economically reasonable terms, or at all, or that any insurer will not deny coverage as to any future claim. The successful assertion of one or more large claims against us that exceed available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to our Intellectual Property

If we are sued for infringing, misappropriating or otherwise violating intellectual property rights of third parties, such litigation could be costly and time consuming and could prevent or delay us from developing or commercializing our products.

Our commercial success depends on our ability to develop, manufacture, market and sell our products and use our products and technologies without infringing, misappropriating or otherwise violating the intellectual property rights of third parties. We operate in a crowded technology area in which there are numerous issued patents and patent applications and in which there has been substantial litigation regarding patent and other intellectual property rights. There also is a substantial number of administrative proceedings for challenging patents, including interference, derivation, *inter partes* review ("IPR"), post grant review, and reexamination proceedings before the United States Patent and Trademark Office ("USPTO"), or oppositions and other comparable proceedings in foreign jurisdictions. We expect to be exposed to, or threatened with, future litigation by third parties, including our primary competitors, who have patent and other intellectual property rights and may allege that our research and development activities, products, manufacturing methods, software and/or technologies infringe, misappropriate or otherwise violate their intellectual property rights. Our competitors have numerous issued patents and pending patent applications in the fields covered by our products and in which we are developing our products and technologies. It is not always clear to industry participants, including us, the claim scope that may issue from pending patent applications owned by third parties or which patents cover various types of products, technologies or their methods of use or manufacture. In addition, many patent applications are unpublished for up to 18 months from their first filing date and are not accessible to us. We expect that our competitors may, either in connection with our launch of the G4, our planned PX or other product offerings, assert that we are infringing, or have in the past infringed as part of our research and development activities, their patent and other intellectual property rights and that we are employing their proprietary technology without authorization.

If third parties, including our competitors, believe that our products or technologies infringe, misappropriate or otherwise violate their intellectual property, such third parties may seek to enforce their intellectual property, including patents, against us by filing an intellectual property-related lawsuit, including a patent infringement lawsuit, against us. There is no assurance that a court would find in our favor on questions of infringement, validity, enforceability, or priority. If any of our competitors, or any other third parties, were to assert their patents against us and we are unable to successfully defend against any such assertion, we may be required, including by court order, to cease the development and commercialization of the infringing products or technology and we may be required to redesign such products and technologies so they do not infringe such patents, which may not be possible or may require substantial monetary expenditures and time. We could also be required to pay damages, which could be significant, including treble damages and attorneys' fees if we are found to have willfully infringed such patents. We could also be required to obtain a license to such patents in order to continue the development and commercialization of the infringing product or technology, which may not be on commercially reasonable terms or may not be obtainable at all. Even if such license were available, it may require substantial payments or cross-licenses under our intellectual property rights, and it may only be available on a nonexclusive basis, in which case third parties, including our competitors, could use the same licensed intellectual property to compete with us. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operation or prospects.

We may choose to challenge the patentability, validity or enforceability of any third-party patent that we believe may have applicability in our field, and any other third-party patent that may be asserted against us. Such challenges may be brought either in court or by requesting that the USPTO, or other foreign patent offices review the patent claims. However, there can be no assurance that any such challenge will be successful and if not successful, we may be estopped from asserting in a district court any grounds already raised or that could have been raised in certain proceedings, such as IPR at the USPTO. Even if such proceedings are successful, these proceedings are expensive and may consume our time or other resources, distract our management and technical personnel.

Third parties, including our existing and future competitors, may be infringing, misappropriating or otherwise violating our owned and in-licensed intellectual property rights. Monitoring unauthorized use of our intellectual property will be difficult and costly. We may not be able to detect unauthorized use of, or take appropriate steps to enforce, our intellectual property rights. From time to time, we seek to analyze our competitors' products and services, and may in the future seek to enforce our rights against potential infringement, misappropriation or violation of our intellectual property. However, the steps we have taken to protect our intellectual property rights may not be adequate to enforce our rights. Any inability to meaningfully enforce our intellectual property rights could harm our ability to compete and reduce demand for our products and technologies.

Litigation proceedings may be necessary for us to enforce our patent and other intellectual property rights. We may not be successful in such proceedings. Further, in such proceedings, the defendant could counterclaim that our intellectual property is invalid or unenforceable and the court may agree, in which case we could lose valuable intellectual property rights. The outcome in any such proceedings are unpredictable. Third parties may also bring challenges to our patents in the USPTO or foreign patent offices seeking to invalidate them.

Regardless of whether we are defending against or asserting any intellectual property-related proceeding, any such intellectual property-related proceeding that may be necessary in the future, regardless of outcome, could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition, results of operations and prospects. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of such ongoing litigation, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Some of our competitors and other third parties may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. We may not have sufficient financial or other resources to adequately conduct these types of litigation or proceedings. Any of the foregoing, or any uncertainties resulting from the initiation, continuation and results of any litigation, could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, financial condition, results of operations and prospects. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar adverse effect on our business, financial condition, results of operations and prospects.

If we are unable to obtain and maintain sufficient intellectual property protection for our products and technology, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our products may be impaired.

We rely on patent, trademark, copyright, trade secret and other intellectual property rights and contractual restrictions to protect our proprietary products and technologies, all of which provide limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. We currently have three issued patents covering our proprietary next-generation sequencing technology. If we fail to obtain additional patent protection for our products and technology and maintain and protect our intellectual property rights, third parties may be able to compete more effectively against us. In addition, we may incur substantial litigation costs in our attempts to recover or restrict use of our intellectual property. Further, if we are unable to obtain and maintain sufficient intellectual property protection for our products and technology, or if the scope of the intellectual property protection obtained is not sufficiently broad, our ability to successfully commercialize our products may be impaired.

We have and intend to continue to apply for patents covering our products and technologies and uses thereof, as we deem appropriate. However, obtaining and enforcing patents is costly, time-consuming and complex, and we may fail to apply for patents on important products and technologies in a timely fashion or at all, or we may fail to apply for patents in potentially relevant jurisdictions. We may not be able to file and prosecute all necessary or desirable patent applications, or maintain, enforce and license any patents that may issue from such patent applications, at a reasonable cost or in a timely manner or in all jurisdictions. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, we may not develop additional proprietary products, methods and technologies that are patentable. We may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the rights to patents licensed from or to third parties. Therefore, these patents and applications may not be prosecuted and enforced by such third parties in a manner consistent with the best interests of our business.

In addition, the patent position of life sciences technology companies such as ours is generally highly uncertain, involves complex legal and factual questions, and our industry has been to widespread and intense litigation in recent years. Changes in either the patent laws or in interpretations of patent laws in the United States or other countries or regions may diminish the value of our intellectual property. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. It is possible that none of our pending patent applications will result in issued patents in a timely fashion or at all, and even if patents are granted, they may not provide a basis for intellectual property protection of commercially viable products or technologies, may not provide us with any competitive advantages, or may be challenged, narrowed and invalidated by third parties. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. It is possible that third parties will design around our current or future patents such that we cannot prevent such third parties from using similar technologies and commercializing similar products to compete with us. Some of our owned or licensed patents or patent applications may be challenged at a future point in time and we may not be successful in defending any such challenges made against our patents or patent applications. Any successful third-party challenge to our patents could result in the narrowing, unenforceability or invalidity of such patents and increased competition to our business. The outcome of patent litigation or other proceeding can be uncertain, and any attempt by us to enforce our patent rights against others or to challenge the patent rights of others may not be successful, or, regardless of success, may take substantial time and result in substantial cost, and may divert our efforts and attention from other aspects of our business. Any of the foregoing events could have a material adverse effect on our business, financial condition and results of operations.

We cannot ensure that patent rights relating to inventions described and claimed in our pending patent applications will issue and will provide sufficient protection for our products and technologies. We also cannot ensure that our patents or patents based on our patent applications will not be challenged and rendered invalid and/or unenforceable.

Our success depends in large part on our ability to obtain and maintain intellectual property protection, particularly patents, for our products and technologies in the both the United States and other foreign countries. Patents are of national or regional effect, and filing, prosecuting and defending patents on all of our products and technologies throughout the world would be prohibitively expensive, and the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. As such, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Further, the legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. As such, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Furthermore, certain foreign and developing countries, including China and India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third-party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license. We have pending U.S. and foreign patent applications in our portfolio, however, we cannot predict:

- if and when patents may issue based on our patent applications;
- the scope of protection of any patent issuing based on our patent applications;
- whether the claims of any patent issuing based on our patent applications will provide protection against competitors;
- whether or not third parties will find ways to invalidate or circumvent our patent rights;
- whether or not others will obtain patents claiming aspects similar to those covered by our patents and patent applications;
- whether we will need to initiate litigation or administrative proceedings to enforce and/or defend our patent rights which will be costly whether we win or lose; and/or
- whether the patent applications that we own or in-license will result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries.

We cannot be certain that the claims in our pending patent applications directed to our product candidates and/or technologies will be considered patentable by the USPTO or by patent offices in foreign countries. One aspect of the determination of patentability of our inventions depends on the scope and content of the "prior art," information that was or is deemed available to a person of skill in the relevant art prior to the priority date of the claimed invention. There may be prior art of which we are not aware that may affect the patentability of our patent claims or, if issued, affect the validity or enforceability of a patent claim. Even if the patents do issue based on our patent applications, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, patents in our portfolio may not adequately exclude third parties from practicing relevant technology or prevent others from designing around our claims. If the breadth or strength of our intellectual property position with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop and threaten our ability to commercialize our product candidates. In the event of litigation or administrative proceedings, we cannot be certain that the claims in any of our issued patents will be considered valid by courts in the United States or foreign countries.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have employed and expect to employ individuals who were previously employed at universities, research institutions or other companies, including our competitors or potential competitors. Although we seek to protect our ownership of intellectual property rights by ensuring that our agreements with our employees, collaborators, and other third parties with whom we do business include provisions requiring such parties to not disclose the confidential information of their previous employers or other third parties, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of our employees' former employers or other third parties. We or our licensors may also be subject to claims that former employers or other third parties have an ownership interest in our patents. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and if we or our licensors fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Even if we are successful, litigation could result in substantial cost and be a distraction to our management and other employees.

If we are unable to protect the confidentiality of our trade secrets, the value of our technology could be materially adversely affected and our business could be harmed.

We rely heavily on trade secrets and confidentiality agreements to protect our unpatented know-how, technology and other proprietary information, including the design and features of the G4 and our planned PX, and to maintain our competitive position. However, trade secrets and know-how can be difficult to protect. In particular, we anticipate that with respect to our technologies, these trade secrets and know how will over time be disseminated within the industry through independent development, the publication of journal articles describing the methodology, and the movement of personnel from academic to industry scientific positions.

In addition to pursuing patents on our technology, we take steps to protect our intellectual property and proprietary technology by entering into agreements, including confidentiality agreements, non-disclosure agreements and intellectual property assignment agreements, with our employees, consultants, academic institutions, corporate partners and, when needed, our advisers. However, we cannot be certain that such agreements have been entered into with all relevant parties, and we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors or other third parties will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. For example, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure, which could adversely impact our ability to establish or maintain a competitive advantage in the market, business, financial condition, results of operations and prospects.

Monitoring unauthorized disclosure is difficult, and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate. If we were to enforce a claim that a third-party had wrongfully obtained and was using our trade secrets, it would be expensive and time-consuming, it could distract our personnel, and the outcome would be unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets.

We also seek to preserve the integrity and confidentiality of our confidential proprietary information by maintaining physical security of our premises and physical and electronic security of our information technology systems, but it is possible that these security measures could be breached. If any of our confidential proprietary information were to be lawfully obtained or independently developed by a competitor or other third-party, absent patent protection, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. Competitors or third parties could purchase our products and attempt to replicate some or all of the competitive advantages we derive from our development efforts, design around our protected technology, develop their own competitive technologies that fall outside the scope of our intellectual property rights or independently develop our technologies without reference to our trade secrets. If any of our trade secrets were to be disclosed to or independently discovered by a competitor or other third-party, it could materially and adversely affect our business, financial condition, results of operations and prospects.

We could have disputes with contractual counterparties regarding our or their performance under those contracts or we could be unable to fulfill such contractual commitments. For example, we in-licensed certain patents and other intellectual property rights from The Trustees of Columbia University in the City of New York ("Columbia"). If we fail to comply with the terms of our agreement with Columbia or have a disagreement with Columbia regarding our obligations thereunder, we may be subject to breach of contract claims or other actions by Columbia, which could harm our business, results of operations and financial condition.

We could have disputes with contractual counterparties regarding our or their performance under those contracts or could be unable to fulfill such contractual commitments. For example, in August 2016, we entered into an Exclusive License Agreement with Columbia, which was subsequently amended in September 2016, November 2016 and June 2017 (the "License Agreement"). Under the License Agreement, we received (i) an exclusive, sublicensable, worldwide license under certain patents owned by Columbia to discover, develop, make and sell products or services covered by the claims of such licensed patents (the "Patent Products"), and (ii) an exclusive, sublicensable, worldwide license under certain materials and technical information provided by Columbia to discover, develop, make and sell products or services that directly use or incorporate such materials or information (the "Other Products"). Under the License Agreement, we are required to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products and to achieve certain fundraising and development milestone events. For any products within the scope of the License Agreement that we commercialize, we are required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single-digit royalty rates on net sales of Other Products. We are also required to make milestone payments to Columbia upon our achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement.

The License Agreement includes a number of diligence obligations that require us to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products by certain dates. Columbia could take the position that the License Agreement should convert to a non-exclusive license or pursue actions to terminate the License Agreement alleging that we have not satisfied our diligence obligations. Columbia could also disagree with our interpretation of our milestone and royalty obligations under the License Agreement and contend that we are in breach of the License Agreement.

Columbia has a right to pursue a termination of the License Agreement in the event we become insolvent or otherwise cease operations, in the event we materially breach our obligations under the License Agreement, or in the event we assert any claim challenging the validity or enforceability of any patent licensed to us by Columbia under the License Agreement. For example, Columbia may assert that we have breached the License Agreement if it disagrees with our interpretation regarding the application of the License Agreement to the G4 and PX instruments and the associated consumables. Columbia may take the position that we have not complied with our diligence obligations under the License Agreement. There is no assurance that we can satisfy our obligations under the License Agreement, or that we and Columbia will agree on whether or not we have satisfied our obligations under the License Agreement, including whether any royalty or milestones, or the amount thereof, are payable under the terms of the License Agreement or whether we have satisfied our diligence obligations. If we fail to comply with our obligations, or if we and Columbia do not agree on whether we have satisfied our obligations under the License Agreement, Columbia could exercise its right to assert a breach of contract, convert the License Agreement to a non-exclusive license and/or pursue actions to terminate the License Agreement. If we are required to defend against breach of contract or other claims and actions asserted by Columbia or if Columbia is successful in terminating the License Agreement or converting the License Agreement to a non-exclusive license, our business may be adversely affected. Further, if we are required to make additional milestone payments or pay Columbia royalties on the G4 and PX Instruments, and the consumables we have developed to date, beyond what we believe would be due under the License Agreement, our resulting operations and financial condition may be adversely affected. If we are unable to fulfill our contractual commitments with Columbia or other parties, or if we have disputes with Columbia or other contractual counterparties regarding our or their performance under those contracts, our results of operations and financial condition may be adversely affected.

Patent terms may be inadequate to protect our competitive position on our products for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. While extensions may be available, the life of a patent, and the protection it affords, is limited. In the United States, a patent's term may, in certain cases, be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over a commonly owned patent or a patent naming a common inventor and having an earlier expiration date. Even if patents covering our products are obtained, once the patent life has expired, we may be open to competition from competitive products. If one of our products requires extended development, testing and/or regulatory review, patents protecting such products might expire before or shortly after such products are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours, which could have a material adverse effect on our business, financial condition and results of operations.

We may not be able to protect and enforce our trademarks and trade names, or build name recognition in our markets of interest thereby harming our competitive position.

The registered or unregistered trademarks or trade names that we own may be challenged, infringed, circumvented, declared generic, lapsed or determined to be infringing on or dilutive of other marks. We may not be able to protect our rights in these trademarks and trade names, which we need in order to build name recognition. In addition, third parties have filed, and may in the future file, for registration of trademarks similar or identical to our trademarks, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Further, we may in the future enter into agreements with owners of such third-party trade names or trademarks to avoid potential trademark litigation which may limit our ability to use our trade names or trademarks in certain fields of business. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively, and our business, financial condition, results of operations and prospects may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources. Any of the foregoing events could have a material adverse effect on our business, financial condition and results of operations.

The U.S. law relating to the patentability of certain inventions in the life sciences technology industry is uncertain and rapidly changing, which may adversely impact our existing patents or our ability to obtain patents in the future.

Changes in either the patent laws or interpretation of the patent laws in the United States or in other jurisdictions could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. For instance, under the Leahy-Smith America Invents Act, or the America Invents Act, enacted in September 2011, the United States transitioned to a first inventor to file system in which, assuming that other requirements for patentability are met, the first inventor to file a patent application is entitled to the patent on an invention regardless of whether a third-party was the first to invent the claimed invention. These changes include allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to challenge the validity of a patent by USPTO administered post-grant proceedings, including post-grant review, *inter partes* review and derivation proceedings. The America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Various courts, including the U.S. Supreme Court, have rendered decisions that impact the scope of patentability of certain inventions or discoveries relating to the life sciences technology. Specifically, these decisions stand for the proposition that patent claims that recite laws of nature are not themselves patentable unless those patent claims have sufficient additional features that provide practical assurance that the processes are genuine inventive applications of those laws rather than patent drafting efforts designed to monopolize the law of nature itself. What constitutes a "sufficient" additional feature is uncertain. Furthermore, in view of these decisions, since December 2014, the USPTO has published and continues to publish revised guidelines for patent examiners to apply when examining process claims for patent eligibility.

In addition, U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events may create uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways that may have a material adverse effect on our ability to obtain new patents and to defend and enforce our existing patents and patents that we might obtain in the future.

We cannot be certain that our patent portfolio will not be negatively impacted by the current uncertain state of the law, new court rulings or changes in guidance or procedures issued by the USPTO or other similar patent offices around the world. From time to time, the U.S. Supreme Court, other federal courts, the U.S. Congress or the USPTO may change the standards of patentability, scope and validity of patents within the life sciences technology and any such changes, or any similar adverse changes in the patent laws of other jurisdictions, could have a negative impact on our business, financial condition, prospects and results of operations.

If we cannot license rights to use technologies on reasonable terms, we may not be able to commercialize new products in the future.

We may identify third-party technology that we may need to license or acquire in order to develop or commercialize our products or technologies. However, we may be unable to secure such licenses or acquisitions. The licensing or acquisition of third-party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us.

We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. In return for the use of a third-party's technology, we may agree to pay the licensor royalties based on sales of our products or services. Royalties are a component of cost of products or technologies and affect the margins on our products. We may also need to negotiate licenses to patents or patent applications before or after introducing a commercial product. We may not be able to obtain necessary licenses to patents or patent applications, the commercial release of our products could delayed and our business may suffer if we are unable to enter into the necessary licenses on acceptable terms or at all, if any necessary licenses are subsequently terminated, if the licensor fails to abide by the terms of the license or fails to prevent infringement by third parties, or if the licensed intellectual property rights are found to be invalid or unenforceable.

Certain of our future owned and in-licensed patents may be subject to a reservation of rights by one or more third parties, including government march-in rights, which may limit our ability to exclude third parties from commercializing products similar or identical to ours.

Our future in-licensed patents may be subject to a reservation of rights by one or more third parties. For example, when new technologies are developed with government funding, in order to secure ownership of such patent rights, the recipient of such funding is required to comply with certain government regulations, including timely disclosing the inventions claimed in such patent rights to the U.S. government and timely electing title to such inventions. Any failure to timely elect title to such inventions may provide the U.S. government to, at any time, take title such inventions. Additionally, the U.S. government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention or to have others use the invention on its behalf. If the government decides to exercise these rights, it is not required to engage us as its contractor in connection with doing so. These rights may permit the U.S. government to disclose our confidential information to third parties and to exercise march-in rights to use or allow third parties to use our licensed technology. The U.S. government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, our rights in such inventions may be subject to certain requirements to manufacture products embodying such inventions in the United States. Any exercise by the government of any of the foregoing rights could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our use of open source software may pose particular risks to our proprietary software and systems.

We use open source software in our products and anticipate that we will continue to use open source software in the future. The licenses applicable to our use of open source software may require that source code that is developed using open source software be made available to the public and that any modifications or derivative works to certain open source software continue to be licensed under open source licenses. From time to time, we may face claims from third parties claiming infringement of their intellectual property rights, or demanding the release or license of the open source software or derivative works that we developed using such software (which could include our proprietary source code) or otherwise seeking to enforce the terms of the applicable open source license. These claims could result in litigation and could require us to purchase a costly license, publicly release the affected portions of our source code, be limited in or cease using the implicated software unless and until we can re-engineer such software to avoid infringement or change the use of, or remove, the implicated open source software. Our use of open source software may also present additional security risks because the source code for open source software is publicly available. Any of these risks could be difficult to eliminate or manage, and, if not addressed, could have a material adverse effect on our business, results of operations, financial condition, and prospects.

Risks Related to Regulatory and Legal Compliance Matters

If we elect to label and promote any of our products as clinical diagnostics tests or medical devices, we would be required to obtain prior approval or clearance by the FDA, which would take significant time and expense and could fail to result in FDA clearance or approval for the intended uses we believe are commercially attractive.

We intend to market and sell the G4 and our planned PX primarily to academic and research institutions and research companies, government laboratories, hospitals, and biotechnology, consumer genomics and proteomics, commercial molecular diagnostic laboratories, and agrigenomics companies as research use only ("RUO") products. Our products are not currently designed, or intended to be used, for clinical diagnostic tests or as medical devices. If we elect to label and market our products for use as, or in the performance of, clinical diagnostics in the United States, thereby subjecting them to U.S. Food and Drug Administration ("FDA") regulation as medical devices, we would be required to obtain premarket 510(k) clearance or premarket approval from the FDA, unless an exception applies.

We may in the future register with the FDA as a medical device manufacturer and list some of our products with the FDA pursuant to an FDA Class I listing for general purpose laboratory equipment. While this regulatory classification is exempt from certain FDA requirements, such as the need to submit a premarket notification commonly known as a 510(k), and some of the requirements of the FDA's Quality System Regulations ("QSRs"), we would be subject to ongoing FDA "general controls," which include compliance with FDA regulations for labeling, inspections by the FDA, complaint evaluation, corrections and removals reporting, promotional restrictions, reporting adverse events or malfunctions for our products, and general prohibitions against misbranding and adulteration.

In addition, we may in the future submit 510(k) premarket notifications to the FDA to obtain FDA clearance of certain of our products on a selective basis. It is possible, in the event we elect to submit 510(k) applications for certain of our products, that the FDA would take the position that a more burdensome premarket application, such as a premarket approval application (PMA) or a de novo application is required for some of our products. If such applications were required, greater time and investment would be required to obtain FDA approval. Even if the FDA agreed that a 510(k) was appropriate, FDA clearance can be expensive and time consuming. It generally takes a significant amount of time to prepare a 510(k), including conducting appropriate testing on our products, and several months to years for the FDA to review a submission. Notwithstanding the effort and expense, FDA clearance or approval could be denied for some or all of our products for which we choose to market as a medical device or a clinical diagnostic device. Even if we were to seek and obtain regulatory approval or clearance, it may not be for the intended uses we request or that we believe are important or commercially attractive. There can be no assurance that future products for which we may seek premarket clearance or approval will be approved or cleared by FDA or a comparable foreign regulatory authority on a timely basis, if at all, nor can there be assurance that labeling claims will be consistent with our anticipated claims or adequate to support continued adoption of such products. Compliance with FDA or comparable foreign regulatory authority regulations will require substantial costs, and subject us to heightened scrutiny by regulators and substantial penalties for failure to comply with such requirements or the inability to market our products. The lengthy and unpredictable premarket clearance or approval process, as well as the unpredictability of the results of any required clinical studies, may result in our failing to obtain regulatory clearance or approval to market such products, which would significantly harm our business, results of operations, reputation, and prospects.

If we sought and received regulatory clearance or approval for certain of our products, we would be subject to ongoing FDA obligations and continued regulatory oversight and review, including the general controls listed above and the FDA's QSRs for our development and manufacturing operations. In addition, we would be required to obtain a new 510(k) clearance before we could introduce subsequent modifications or improvements to such products. We could also be subject to additional FDA post-marketing obligations for such products, any or all of which would increase our costs and divert resources away from other projects. If we sought and received regulatory clearance or approval and are not able to maintain regulatory compliance with applicable laws, we could be prohibited from marketing our products for use as, or in the performance of, clinical diagnostics and/or could be subject to enforcement actions, including warning letters and adverse publicity, fines, injunctions and civil penalties, recall or seizure of products, operating restrictions and criminal prosecution.

In addition, we could decide to seek regulatory clearance or approval for certain of our products in countries outside of the United States. Sales of such products outside the United States will likely be subject to foreign regulatory requirements, which can vary greatly from country to country. As a result, the time required to obtain clearances or approvals outside the United States may differ from that required to obtain FDA clearance or approval and we may not be able to obtain foreign regulatory approvals on a timely basis or at all. For example, in Europe we would need to comply with the new Medical Device Regulation 2017/745 and In Vitro Diagnostic Regulation 2017/746, which became effective May 26, 2017, with application dates of May 26, 2021 (postponed from 2020) and May 26, 2022 respectively. This will increase the difficulty of regulatory approvals in Europe in the future. In addition, the FDA regulates exports of medical devices. Failure to comply with these regulatory requirements or obtain and maintain required approvals, clearances and certifications could impair our ability to commercialize our products for diagnostic use outside of the United States.

The G4 is sold as an RUO product; changes in the regulatory landscape could affect the market for such a product. Our products could become subject to government regulation as medical devices by the FDA and other regulatory agencies even if we do not elect to seek regulatory clearance or approval to market our products for diagnostic purposes, which would adversely impact our ability to market and sell our products and harm our business. If our products become subject to FDA regulation, the regulatory clearance or approval and the maintenance of continued and post-market regulatory compliance for such products will be expensive, time-consuming, and uncertain both in timing and in outcome.

The G4 is sold as an RUO product, and we do not currently expect either the G4 or our planned PX to be subject to the clearance or approval of the FDA, as they are not intended to be used for the diagnosis, treatment or prevention of disease. However, as we expand our product line and the applications and uses of our products into new fields, certain of our future products could become subject to regulation by the FDA, or comparable international agencies, including requirements for regulatory clearance or approval of such products before they can be marketed. Also, even if our products are labeled, promoted, and intended as RUO, the FDA or comparable agencies of other countries could disagree with our conclusion that our products are intended for RUO or deem our sales, marketing and promotional efforts as being inconsistent with RUO products. For example, our customers may independently elect to use our RUO labeled products in their own laboratory developed tests ("LDTs") for clinical diagnostic use, which could subject our products to government regulation, and the regulatory clearance or approval and maintenance process for such products may be uncertain, expensive and time-consuming. Regulatory requirements related to marketing, selling and distribution of RUO products could change or be uncertain, even if clinical uses of our RUO products by our customers were done without our consent. Further, regulations may change causing RUO products to be subject to regulatory clearance or approval. If the FDA or other regulatory authorities assert that any of our RUO products are subject to regulatory clearance or approval, our business, financial condition, or results of operations could be adversely affected.

The FDA has historically exercised enforcement discretion in not enforcing the medical device regulations against laboratories offering LDTs. However, on October 3, 2014, the FDA issued two draft guidance documents that set forth the FDA's proposed risk-based framework for regulating LDTs, which are designed, manufactured, and used within a single laboratory. The draft guidance documents provide the anticipated details through which the FDA would propose to establish an LDT oversight framework, including premarket review for higher-risk LDTs, such as those that have the same intended use as FDA-approved or cleared companion diagnostic tests currently on the market. In January 2017, the FDA announced that it would not issue final guidance on the oversight of LDTs and manufacturers of products used for LDTs, but would seek further public discussion on an appropriate oversight approach, and give Congress an opportunity to develop a legislative solution. More recently, the FDA has issued warning letters to certain genomics labs for illegally marketing genetic tests that claim to predict patients' responses to specific medications, noting that the FDA has not created a legal "carve-out" for LDTs and retains discretion to take action when appropriate, such as when certain genomic tests raise significant public health concerns.

As manufacturers develop more complex diagnostic tests and diagnostic software, the FDA may increase its regulation of LDTs. Any future legislative or administrative rule making or oversight of LDTs, if and when finalized, may impact the sales of our products and how customers use our products, and may require us to change our business model in order to maintain compliance with these laws. We cannot predict how these various efforts will be resolved, how Congress or the FDA will regulate LDTs in the future, or how that regulatory system will impact our business. Changes to the current regulatory framework, including the imposition of additional or new regulations, including regulation of our products, could arise at any time during the development or marketing of our products, which may negatively affect our ability to obtain or maintain FDA or comparable regulatory approval of our products, if required. Further, sales of devices for diagnostic purposes may subject us to additional healthcare regulation and enforcement by the applicable government agencies. Such laws include, without limitation, state and federal anti-kickback or anti-referral laws, healthcare fraud and abuse laws, false claims laws, privacy and security laws, Physician Payments Sunshine Act and related transparency and manufacturer reporting laws, and other laws and regulations applicable to medical device manufacturers. Our operations may subject us to certain of these health care laws through our customers who use our platform for the development or sale of diagnostic tests. Failure to comply with such laws and regulations, as applicable, may result in substantial penalties.

Additionally, on November 25, 2013, the FDA issued Final Guidance "Distribution of In Vitro Diagnostic Products Labeled for Research Use Only." The guidance emphasizes that the FDA will review the totality of the circumstances when it comes to evaluating whether equipment and testing components are properly labeled as RUO. The final guidance states that merely including a labeling statement that the product is for RUO will not necessarily render the device exempt from the FDA's clearance, approval, and other regulatory requirements if the circumstances surrounding the distribution, marketing and promotional practices indicate that the manufacturer knows its products are, or intends for its products to be, used for clinical diagnostic purposes. These circumstances may include written or verbal sales and marketing claims or links to articles regarding a product's performance in clinical applications and a manufacturer's provision of technical support for clinical applications.

As part of the previous Administration's efforts to combat COVID-19 and consistent with former President Trump's direction in Executive Orders 13771 and 13924, the Department of Health and Human Services (HHS) announced rescission of guidance and other informal issuances of the FDA regarding premarket review of LDT absent notice-and-comment rulemaking, stating that, absent notice-and-comment rulemaking, those seeking approval or clearance of, or an emergency use authorization, for an LDT may nonetheless voluntarily submit a premarket approval application, premarket notification or an Emergency Use Authorization request, respectively, but are not required to do so. However, laboratories opting to use LDTs without FDA premarket review or authorization would not be eligible for liability protection under the Public Readiness and Emergency Preparedness Act. While this action by HHS is expected to reduce the regulatory burden on clinical laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 that develop LDTs, it is unclear how this action as well as future legislation by federal and state governments and the FDA will impact the industry, including our business and that of our customers. Such HHS measure may compel the FDA to formalize earlier enforcement discretionary policies and informal guidance through notice-and-comment rulemaking and/or impose further restrictions on LDTs. HHS' rescission policy may change over time and we cannot be certain if the new administration will withdraw Executive Orders 13771 and 13924. Congress could also enact legislation restricting LDTs. Any restrictions on LDTs by the FDA, HHS, Congress, or state regulatory authorities may decrease the demand for our products. The adoption of new restrictions on RUO products, whether by the FDA or Congress, could adversely affect demand for our specialized reagents and instruments. Further, we could be required to obtain premarket clearance or approval before we can sell our products to certain customers.

Additionally, in the United States and some foreign jurisdictions there have been, and continue to be, several legislative and regulatory changes and proposed reforms of the healthcare system in an effort to contain costs, improve quality, and expand access to care. Further, third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for medications and other health care products and services. Our ability to commercialize any of our products successfully, and our customers' ability to commercialize their products successfully, will depend in part on the extent to which coverage and adequate reimbursement for these products and will be available from third-party payors. As such, cost containment reform efforts may result in an adverse effect on our operations.

We are currently subject to, and may in the future become subject to additional, U.S. federal and state laws and regulations imposing obligations on how we collect, store and process personal information. Our actual or perceived failure to comply with such obligations could harm our business. Ensuring compliance with such laws could also impair our efforts to maintain and expand our future customer base, and thereby decrease our revenue.

In the ordinary course of our business, we currently, and in the future will, collect, store, transfer, use or process sensitive data, including personally identifiable information of employees, and intellectual property and proprietary business information owned or controlled by ourselves and other parties. The secure processing, storage, maintenance, and transmission of this critical information is vital to our operations and business strategy. We are, and may increasingly become, subject to various laws and regulations, as well as contractual obligations, relating to data privacy and security in the jurisdictions in which we operate. The regulatory environment related to data privacy and security is increasingly rigorous, with new and constantly changing requirements applicable to our business, and enforcement practices are likely to remain uncertain for the foreseeable future. These laws and regulations may be interpreted and applied differently and inconsistently over time and from jurisdiction to jurisdiction, and it is possible that they will be interpreted and applied in ways that may have a material adverse effect on our business, financial condition, results of operations and prospects.

In the United States, various federal and state regulators, including governmental agencies like the Consumer Financial Protection Bureau and the Federal Trade Commission, have adopted, or are considering adopting, laws and regulations concerning personal information and data security. Certain state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to personal information than federal, international or other state laws, and such laws may differ from each other, all of which may complicate compliance efforts. For example, the California Consumer Privacy Act ("CCPA"), which increases privacy rights for California residents and imposes obligations on companies that process their personal information, came into effect on January 1, 2020. Among other things, the CCPA requires covered companies to provide new disclosures to California consumers and provide such consumers new data protection and privacy rights, including the ability to opt-out of certain sales of personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches that result in the loss of personal information. This private right of action may increase the likelihood of, and risks associated with, data breach litigation. In addition, laws in all 50 U.S. states require businesses to provide notice to consumers whose personal information has been disclosed as a result of a data breach. State laws are changing rapidly and there is discussion in the U.S. Congress of a new comprehensive federal data privacy law to which we would become subject if it is enacted. Additionally, California voters approved a new privacy law, the California Privacy Rights Act ("CPRA"), in the November 3, 2020 election. Effective starting on January 1, 2023, the CPRA will significantly modify the CCPA, including by expanding consumers' rights with respect to certain sensitive personal information. The CPRA also creates a new state agency that will be vested with authority to implement and enforce the CCPA and the CPRA. New legislation proposed or enacted in various other states will continue to shape the data privacy environment nationally. Certain state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to confidential, sensitive and personal information than federal, international or other state laws, and such laws may differ from each other, which may complicate compliance efforts.

Further, regulations promulgated pursuant to the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), establish privacy and security standards that limit the use and disclosure of individually identifiable health information (known as "protected health information" or "PHI") and require the implementation of administrative, physical and technological safeguards to protect the privacy of PHI and ensure the confidentiality, integrity and availability of electronic PHI. Determining whether protected health information has been handled in compliance with applicable privacy standards and our contractual obligations can require complex factual and statistical analyses and may be subject to changing interpretation. Although we take measures to protect sensitive data from unauthorized access, use or disclosure, our information technology and infrastructure may be vulnerable to attacks by hackers or viruses or breached due to employee error, malfeasance or other malicious or inadvertent disruptions. Any such breach or interruption could compromise our networks and the information stored there could be accessed by unauthorized parties, manipulated, publicly disclosed, lost or stolen. Any such access, breach or other loss of information could result in legal claims or proceedings, liability under federal or state laws that protect the privacy of personal information (such as the HIPAA and the Health Information Technology for Economic and Clinical Health Act ("HITECH"), and regulatory penalties. Notice of breaches must be made to affected individuals, the Secretary of the Department of Health and Human Services, and for extensive breaches, notice may need to be made to the media or State Attorneys General. Such a notice could harm our reputation and our ability to compete.

In Europe, the collection, use, storage, disclosure, transfer, or other processing of personal data regarding individuals in the European Economic Area ("EEA"), including personal health data, is subject to the GDPR, which became effective on May 25, 2018. The GDPR is wide-ranging in scope and imposes numerous requirements on companies that process personal data, including requirements relating to processing health and other sensitive data, obtaining consent of the individuals to whom the personal data relates, providing information to individuals regarding data processing activities, implementing safeguards to protect the security and confidentiality of personal data, providing notification of data breaches and taking certain measures when engaging third-party processors. The GDPR also imposes strict rules on the transfer of personal data to countries outside the EEA, including the United States, and permits data protection authorities to impose large penalties for violations of the GDPR, including potential fines of up to €20 million or 4% of annual global revenues, whichever is greater. The GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies and obtain compensation for damages resulting from violations of the GDPR. In addition, the GDPR includes restrictions on cross-border data transfers. The GDPR may increase our responsibility and liability in relation to personal data that we process where such processing is subject to the GDPR, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, including as implemented by individual countries. Compliance with the GDPR will be a rigorous and time- intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines and penalties, litigation and reputational harm in connection with our European activities.

The exit of the United Kingdom ("UK) from the EU, often referred to as Brexit, also has created uncertainty with regard to data protection regulation in the UK. Specifically, the UK exited the EU on January 1, 2020, subject to a transition period that ended December 31, 2020. Under the post-Brexit Trade and Cooperation Agreement between the EU and the UK, the UK and EU have agreed that transfers of personal data to the UK from EEA member states will not be treated as 'restricted transfers' to a non-EEA country for a period of up to four months from January 1, 2021, plus a potential further two months extension (the "Extended Adequacy Assessment Period"). Although the current maximum duration of the Extended Adequacy Assessment Period is six months, it may end sooner, for example, in the event that the European Commission adopts an adequacy decision in respect of the UK, or the UK amends the UK GDPR and/or makes certain changes regarding data transfers under the UK GDPR/Data Protection Act 2018 without the consent of the EU (unless those amendments or decisions are made simply to keep relevant UK laws aligned with the EU's data protection regime). If the European Commission does not adopt an 'adequacy decision' in respect of the UK prior to the expiry of the Extended Adequacy Assessment Period, from that point onwards the UK will be an 'inadequate third country' under the GDPR and transfers of personal data from the EEA to the UK will require a 'transfer mechanism' such as the Standard Contractual Clauses.

Further, the European Court of Justice ("ECJ") invalidated the EU-U.S. Privacy Shield, which had enabled the transfer of personal data from the EU to the U.S. for companies that had self-certified to the Privacy Shield in July 2020. The ECJ decision also raised questions about the continued validity of one of the primary alternatives to the EU-U.S. Privacy Shield, namely the European Commission's Standard Contractual Clauses, and EU regulators have issued additional guidance regarding considerations and requirements that we and other companies must consider and undertake when using the Standard Contractual Clauses. Although the EU has presented a new draft set of contractual clauses, at present, there are few, if any, viable alternatives to the EU-U.S. Privacy Shield and the Standard Contractual Clauses. To the extent that we were to rely on the EU-U.S. or Swiss-U.S. Privacy Shield programs, we will not be able to do so in the future, and the ECJ's decision and other regulatory guidance or developments otherwise may impose additional obligations with respect to the transfer of personal data from the EU and Switzerland to the U.S., each of which could restrict our activities in those jurisdictions, limit our ability to provide our products and services in those jurisdictions, or increase our costs and obligations and impose limitations upon our ability to efficiently transfer personal data from the EU and Switzerland to the U.S.

We are in the process of evaluating compliance needs, and are still finalizing formal policies and procedures related to the storage, collection and processing of information, and still need to conduct internal or external data privacy audits, to ensure our compliance with all applicable data protection laws and regulations. Additionally, we still need to assess our third-party vendors' compliance with applicable data protection laws and regulations. All of these evolving compliance and operational requirements impose significant costs, such as costs related to organizational changes, implementing additional protection technologies, training employees and engaging consultants, which are likely to increase over time. In addition, such requirements may require us to modify our data processing practices and policies, distract management or divert resources from other initiatives and projects, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Any failure or perceived failure by us or our third-party vendors, collaborators, contractors and consultants to comply with any applicable federal, state or similar foreign laws and regulations relating to data privacy and security, or could result in damage to our reputation, as well as proceedings or litigation by governmental agencies or other third parties, including class action privacy litigation in certain jurisdictions, which could subject us to significant fines, sanctions, awards, penalties or judgments, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Our research and development and manufacturing operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risks of contamination or injury from these materials. We could be held liable for any resulting damages in the event of contamination or injury resulting from the use of hazardous materials by us, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain general liability insurance as well as workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research and development. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Further, with respect to the operations of our any future third-party contract manufacturers, it is possible that if they fail to operate in compliance with applicable environmental, health and safety laws and regulations or properly dispose of wastes associated with our products, we could be held liable for any resulting damages, suffer reputational harm or experience a disruption in the manufacture and supply of our product candidates or products. In addition, our supply chain may be adversely impacted if any of our third-party contract manufacturers become subject to injunctions or other sanctions as a result of their non-compliance with environmental, health and safety laws and regulations.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, the U.S. Foreign Corrupt Practices Act of 1977, as amended, ("FCPA"), the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti- corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. We may engage third parties to sell our products outside the United States, to conduct clinical trials, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm and other consequences.

Risks Related to Ownership of our Common Stock

We have a limited market for our common stock. The stock price of our common stock has been and may continue to be volatile or may decline regardless of our operating performance.

While our common stock is traded on the Nasdaq Global Select Market, we currently have a limited trading history and an active trading market may not be sustained. The market price of our common stock has and may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- the timing of our launch and commercialization of our products and degree to which such launch and commercialization meets the expectations of securities analysts and investors;
- actual or anticipated fluctuations in our operating results, including fluctuations in our quarterly and annual results;
- operating and research and development expenses exceed our plans and expectations;
- the failure or discontinuation of any of our product development and research programs;
- changes in the structure or funding of research at academic and research laboratories and institutions, including changes that would affect their ability to purchase our instruments or consumables;
- financing or other corporate transactions, or inability to obtain additional funding;
- sales by us of a substantial number of shares of our capital stock or other securities to raise capital;
- variations in the financial results of competitive companies;
- the introduction and success of existing or new competitive businesses or technologies;
- announcements about new research programs or products by us or our competitors;
- announcements of new pricing or product bundling terms offered by our competitors;
- intellectual property litigation or developments in disputes concerning infringement of patents or other proprietary rights;
- the recruitment or departure of key personnel;
- litigation and governmental investigations involving us, our industry or both;
- regulatory or legal developments in the United States and other countries;
- volatility and variations in market conditions in the life sciences technology sector generally, or the genomics and proteomics sectors specifically;

- investor perceptions of us or our industry;
- the level of expenses related to any of our research and development programs or future products or product enhancements;
- actual or anticipated changes in our estimates as to our financial results or development timelines;
- changes in estimates or recommendations by securities analysts, if any, that cover our common stock or companies that are perceived to be similar to us;
- whether our financial results meet the expectations of securities analysts or investors;
- the effect of inflation on our business;
- the announcement or expectation of additional financing efforts;
- sales of our common stock by us or sales of our common stock or common stock by our insiders or other stockholders;
- the expiration of market standoff or lock-up agreements;
- the COVID-19 pandemic, natural disasters or major catastrophic events; and
- general economic, industry and market conditions.

The concentration of our stock ownership will likely limit your ability to influence corporate matters, including the ability to influence the outcome of director elections and other matters requiring stockholder approval.

As of June 30, 2022, our officers, directors and the holders of more than 5% of our outstanding common stock collectively beneficially own approximately 56% of our common stock. As a result, these stockholders, acting together, will have significant influence over all matters that require approval by our stockholders, including the election of directors and approval of significant corporate transactions. Corporate actions might be taken even if other stockholders oppose them. This concentration of ownership might also have the effect of delaying or preventing a change of control of our company that other stockholders may view as beneficial.

If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our results of operation could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in our financial statements and accompanying notes. We base our estimates on historical experience and estimates and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. For example, in connection with the implementation of the new revenue accounting standard if and when we have product sales, management makes judgments and assumptions based on our interpretation of the new standard. The new revenue standard is principle-based and interpretation of those principles may vary from company to company based on their unique circumstances. It is possible that interpretation, industry practice and guidance may evolve as we apply the new standard. If our assumptions underlying our estimates and judgements relating to our critical accounting policies change or if actual circumstances differ from our assumptions, estimates or judgements, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

We are an "emerging growth company," and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the JOBS Act and we intend to take advantage of some of the exemptions from reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

- the option to present only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes Oxley Act;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- not being required to disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation; and

- not being required to submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency," and "say-on-golden parachutes."

The JOBS Act permits an "emerging growth company" such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. We have elected to avail ourselves of this exemption and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for private companies.

We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of our IPO, (b) in which we have total annual gross revenue of at least $1.07 billion or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior September 30th and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period. Even after we no longer qualify as an emerging growth company, we may qualify as a "smaller reporting company," which would allow us to take advantage of many of the same exemptions from disclosure requirements including reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million.

We do not intend to pay dividends for the foreseeable future.

We have never declared nor paid cash dividends on our capital stock. We currently intend to retain any future earnings to finance the operation and expansion of our business, and we do not expect to declare or pay any dividends in the foreseeable future. The 2021 SVB Loan also contains a negative covenant that prohibits us from paying dividends subject to limited exceptions. Consequently, stockholders must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investment.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

Our status as a Delaware corporation and the anti-takeover provisions of the Delaware General Corporation Law may discourage, delay or prevent a change in control by prohibiting us from engaging in a business combination with an interested stockholder for a period of three years after the person becomes an interested stockholder, even if a change of control would be beneficial to our existing stockholders. In addition, our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that may make the acquisition of our company more difficult, including the following:

- a classified board of directors with three-year staggered terms, which could delay the ability of stockholders to change the membership of a majority of our board of directors;
- the ability of our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by a majority vote of our entire board of directors, the chair of our board of directors or our chief executive officer, which could delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- the requirement for the affirmative vote of holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of the voting stock, voting together as a single class, to amend the provisions of our amended and restated certificate of incorporation or our amended and restated bylaws, which may inhibit the ability of an acquirer to effect such amendments to facilitate an unsolicited takeover attempt; and
- advance notice procedures with which stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted out of this provision.

These and other provisions in our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by our then-current board of directors, including delay or impede a merger, tender offer or proxy contest involving our company. The existence of these provisions could negatively affect the price of our common stock and limit opportunities for you to realize value in a corporate transaction.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the U.S. federal district courts are the exclusive forums for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws or any action asserting a claim against us that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our certificate of incorporation further provides that the U.S. federal district courts will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, including all causes of action asserted against any defendant named in such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees and may discourage these types of lawsuits. Alternatively, if a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

Sales of a substantial number of shares of our common stock in the public market could cause the price of our common stock to fall.

To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. To the extent that additional capital is raised through the sale and issuance of shares or other securities convertible into shares, our stockholders will be diluted. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. Sales of a substantial number of shares of our common stock in the public market could cause our stock price to decline. Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. We cannot predict what effect, if any, sales of our shares in the public market or the availability of shares for sale will have on the market price of our common stock. However, future sales of substantial amounts of our common stock in the public market, or the perception that such sales may occur, could adversely affect the market price of our common stock.

General Risk Factors

If securities or industry analysts cease publishing research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports published by securities or industry analysts about us or our business. Securities and industry analysts currently publish research on our company. If analysts cease coverage of us, the trading price for our common stock could be negatively affected. If one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, our common stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our common stock could decrease, which might cause our common stock price and trading volume to decline.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because our stock price has declined since our IPO, and life science technology companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

Requirements associated with being a public company have increased and will increase our costs significantly, as well as divert significant company resources and management attention.

We are subject to the reporting requirements of the Exchange Act, or the other rules and regulations of the SEC, or any securities exchange relating to public companies. Compliance with the various reporting and other requirements applicable to public companies requires considerable time and attention of management and we will incur significant legal, accounting and other expenses that we did not incur as a private company. We cannot assure you that we will satisfy our obligations as a public company on a timely basis.

In addition, as a public company, it may be more difficult or more costly for us to obtain certain types of insurance, including directors' and officers' liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified personnel to serve on our board of directors, our board committees or as executive officers.

If we fail to maintain proper and effective internal controls, our ability to produce accurate and timely financial statements could be impaired, which could result in sanctions or other penalties that would harm our business.

We are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act and the rules and regulations of the Nasdaq Global Select Market. The Sarbanes Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls over financial reporting. Commencing with our fiscal year ending the year after the completion of our IPO, we must perform system and process design evaluation and testing of the effectiveness of our internal controls over financial reporting to allow management to report on the effectiveness of our internal controls over financial reporting in our Form 10-K filing for that year, as required by Section 404 of the Sarbanes-Oxley Act. To achieve compliance with Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, including through hiring additional financial and accounting personnel, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. This will require that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts. Prior to our IPO, we have never been required to test our internal controls within a specified period and, as a result, we may experience difficulty in meeting these reporting requirements in a timely manner.

We may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, or if we are unable to maintain proper and effective internal controls over financial reporting, we may not be able to produce timely and accurate financial statements. If that were to happen, our investors could lose confidence in our reported financial information, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities including equivalent foreign authorities.

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

Use of Proceeds from Public Offering of Common Stock

On May 26, 2021, our Registration Statement on Form S-1 (File No. 333-255912) ("Registration Statement") relating to the initial public offering of our common stock ("IPO") was declared effective by the SEC. Pursuant to such Registration Statement, we sold an aggregate of 11,730,000 shares of our common stock, which includes 1,530,000 shares sold pursuant to the underwriters' full exercise of their option to purchase additional shares, at a price to the public of $22.00 per share. The aggregate offering price for shares sold in the offering was $258.1 million. On June 1, 2021, we closed the sale of such shares, resulting in aggregate cash proceeds to us of approximately $237.2 million, net of underwriting discounts, commissions and offering expenses paid or payable by us. No offering expenses were paid or are payable, directly or indirectly, to our directors or officers, to persons owning 10% or more of any class of our equity securities or to any of our affiliates. There has been no material change in the planned use of proceeds from our IPO as described in the final prospectus, dated May 26, 2021, filed with the SEC on May 28, 2021, pursuant to Rule 424(b) of the Securities Act.

Item 3. Defaults upon Senior Securities

None.

Item 4. Mine Safety Disclosures

None.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit Number	Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation of Registrant.	8-K	001-40443	3.1	June 1, 2021	
3.2	Amended and Restated Bylaws of Registrant.	8-K	001-40443	3.2	June 1, 2021	
3.3	Certificate of Designation of Preferences, Rights and Limitations of the Series A Preferred Stock, par value $0.0001 per share, of the Company.	8-K	001-40443	3.1	January 26, 2022	
31.1*	Certification of Principal Executive 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.					X
31.2*	Certification of 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.					X
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
101.INS	Inline XBRL Instance Document - The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document.					X
101.SCH	Inline XBRL Taxonomy Extension Schema Document.					X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.					X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.					X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.					X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).					X

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Quarterly Report on Form 10-Q to be signed on its behalf by the undersigned, thereunto duly authorized.

Singular Genomics Systems, Inc.

Date: August 9, 2022

/s/ Andrew Spaventa

Andrew Spaventa

Chief Executive Officer

(Principal Executive Officer)

Date: August 9, 2022

/s/ Dalen Meeter

Dalen Meeter

Senior Vice President, Finance

(Principal Financial Officer and Principal Accounting Officer)

Exhibit 31.1

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

I, Andrew Spaventa, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Singular Genomics Systems, Inc.;

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

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

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

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

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

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

5. The registrant's other certifying officer 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 9, 2022

By: /s/ Andrew Spaventa

Andrew Spaventa
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

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

I, Dalen Meeter, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Singular Genomics Systems, Inc.;

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

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

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

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

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

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

5. The registrant's other certifying officer 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 9, 2022

By: /s/ Dalen Meeter

Dalen Meeter
Senior Vice President, Finance
(Principal Financial Officer and Principal Accounting Officer)

Exhibit 32.1

CERTIFICATIONS OF PRINCIPAL EXECUTIVE OFFICER 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 Singular Genomics Systems, Inc. (the "Company") on Form 10-Q for the period ended June 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Andrew Spaventa, hereby 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, as amended; and

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

Date: August 9, 2022

By: /s/ Andrew Spaventa
Andrew Spaventa
Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATIONS OF PRINCIPAL FINANCIAL OFFICER 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 Singular Genomics Systems, Inc. (the "Company") on Form 10-Q for the period ended June 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Dalen Meeter, hereby 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, as amended; and

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

Date: August 9, 2022

By: /s/ Dalen Meeter

Dalen Meeter
Senior Vice President, Finance
(Principal Financial Officer and Principal Accounting Officer)