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

FORM 10-Q

(Mark One)

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

FOR THE QUARTERLY PERIOD ENDED JUNE 30, 2020

☐ **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: 001-38613

Bionano Genomics, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**26-1756290**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)
9540 Towne Centre Drive, Suite 100, San Diego, CA	**92121**
(Address of Principal Executive Offices)	(Zip Code)

(858) 888-7600
(Registrant's Telephone Number, Including Area Code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value per share	BNGO	The Nasdaq Stock Market, LLC
Warrants to purchase Common Stock	BNGOW	The Nasdaq Stock Market, LLC

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

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

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

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

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

As of August 12, 2020, the registrant had 138,480,045 shares of Common Stock ($0.0001 par value) outstanding.

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

BIONANO GENOMICS, INC.
Condensed Consolidated Balance Sheets

	(Unaudited) June 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 17,194,000	$ 17,311,000
Accounts receivable, net	3,249,000	6,334,000
Inventory, net	3,290,000	3,444,000
Prepaid expenses and other current assets	921,000	1,169,000
Total current assets	24,654,000	28,258,000
Property and equipment, net	2,550,000	1,950,000
Total assets	$ 27,204,000	$ 30,208,000
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,850,000	$ 2,699,000
Accrued expenses	2,431,000	3,225,000
Contract liabilities	289,000	358,000
Current portion of long-term debt	13,938,000	20,085,000
Total current liabilities	19,508,000	26,367,000
Long-term debt, net of current portion	1,775,000	—
Long-term contract liabilities	84,000	183,000
Other non-current liabilities	—	44,000
Total liabilities	21,367,000	26,594,000
Commitments and contingencies		
Stockholders' equity:		
Common stock, $0.0001 par value, 200,000,000 and 200,000,000 shares authorized at June 30, 2020 and December 31, 2019, respectively; 91,975,000 and 34,274,000 shares issued and outstanding at June 30, 2020 and December 31, 2019, respectively	9,000	3,000
Additional paid-in capital	126,989,000	106,188,000
Accumulated deficit	(121,161,000)	(102,577,000)
Total stockholders' equity	5,837,000	3,614,000
Total liabilities and stockholders' equity	$ 27,204,000	$ 30,208,000

See accompanying notes to the condensed consolidated financial statements

BIONANO GENOMICS, INC.
Condensed Consolidated Statements of Operations
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Revenue:				
Product revenue	$ 940,000	$ 2,021,000	$ 1,923,000	$ 3,708,000
Service and other revenue	242,000	154,000	395,000	319,000
Total revenue	1,182,000	2,175,000	2,318,000	4,027,000
Cost of revenue:				
Cost of product revenue	515,000	1,525,000	1,289,000	2,645,000
Cost of service and other revenue	88,000	30,000	170,000	57,000
Total cost of revenue	603,000	1,555,000	1,459,000	2,702,000
Operating expenses:				
Research and development	2,401,000	2,408,000	5,075,000	4,508,000
Selling, general and administrative	5,613,000	5,056,000	12,981,000	9,846,000
Total operating expenses	8,014,000	7,464,000	18,056,000	14,354,000
Loss from operations	(7,435,000)	(6,844,000)	(17,197,000)	(13,029,000)
Other expenses:				
Interest expense	(561,000)	(645,000)	(1,322,000)	(959,000)
Loss on debt extinguishment	—	—	—	(1,333,000)
Other expenses	(73,000)	(171,000)	(55,000)	(186,000)
Total other expenses	(634,000)	(816,000)	(1,377,000)	(2,478,000)
Loss before income taxes	(8,069,000)	(7,660,000)	(18,574,000)	(15,507,000)
Provision for income taxes	(5,000)	(5,000)	(10,000)	(9,000)
Net loss	$ (8,074,000)	$ (7,665,000)	$ (18,584,000)	$ (15,516,000)
Net loss per share, basic and diluted	$ (0.09)	$ (0.71)	$ (0.29)	$ (1.47)
Weighted-average common shares outstanding basic and diluted	90,907,000	10,860,000	63,238,000	10,542,000

See accompanying notes to the condensed consolidated financial statements.

BIONANO GENOMICS, INC.
Condensed Consolidated Statements of Stockholders' Equity (Deficit) (Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount			
Balance at January 1, 2019	10,055,000	$ 1,000	$ 82,898,000	$ (72,762,000)	$ 10,137,000
Stock option exercises	42,000	—	54,000	—	54,000
Stock-based compensation expense	—	—	289,000	—	289,000
Issue common stock	748,000	—	2,410,000	—	2,410,000
Issue warrants for debt	—	—	630,000	—	630,000
Issue stock for debt	—	—	202,000	—	202,000
Net loss	—	—	—	(7,852,000)	(7,852,000)
Balance at March 31, 2019	10,845,000	1,000	86,483,000	(80,614,000)	5,870,000
Stock option exercises	9,000	—	11,000	—	11,000
Stock-based compensation expense	—	—	336,000	—	336,000
Issue stock for employee stock purchase plan	44,000	—	103,000	—	103,000
Net loss	—	—	—	(7,665,000)	(7,665,000)
Balance at June 30, 2019	10,898,000	1,000	86,933,000	(88,279,000)	(1,345,000)
Stock-based compensation expense	—	—	364,000	—	364,000
Net loss	—	—	—	(6,398,000)	(6,398,000)
Balance at September 30, 2019	10,898,000	1,000	87,297,000	(94,677,000)	(7,379,000)
Stock-based compensation expense	—	—	357,000	—	357,000
Issue common stock, net of issuance costs	11,081,000	1,000	8,549,000	—	8,550,000
Issue stock for covenant waiver	573,000	—	504,000	—	504,000
Issue stock for employee stock purchase plan	44,000	—	39,000	—	39,000
Issue stock for warrant exercises	11,678,000	1,000	9,396,000	—	9,397,000
Reduce warrant exercise price for covenant waiver	—	—	46,000	—	46,000
Net loss	—	—	—	(7,900,000)	(7,900,000)
Balance at December 31, 2019	34,274,000	3,000	106,188,000	(102,577,000)	3,614,000
Stock-based compensation expense	—	—	328,000	—	328,000
Issue stock for warrant exercises	3,478,000	—	2,355,000	—	2,355,000
Net loss	—	—	—	$ (10,510,000)	(10,510,000)
Balance at March 31, 2020	37,752,000	$ 3,000	$ 108,871,000	$ (113,087,000)	$ (4,213,000)
Stock-based compensation expense	—	—	328,000	—	328,000
Issue common stock, net of issuance costs	16,896,000	2,000	16,364,000	—	16,366,000
Issue stock for employee stock purchase plan	44,000	—	21,000	—	21,000
Issue stock for covenant waiver	873,000	—	300,000	—	300,000
Issue stock for warrant exercises	36,410,000	4,000	1,105,000	$ —	1,109,000
Net loss				$ (8,074,000)	(8,074,000)
Balance at June 30, 2020	91,975,000	9,000	126,989,000	(121,161,000)	5,837,000

See accompanying notes to the condensed consolidated financial statements

BIONANO GENOMICS, INC.
Condensed Consolidated Statements of Cash Flows
(Unaudited)

	Six Months Ended June 30,	
	2020	**2019**
Operating activities:		
Net loss	$ (18,584,000)	$ (15,516,000)
Adjustments to reconcile net loss to net cash used by operating activities:		
Depreciation and amortization expense	591,000	537,000
Non-cash interest	651,000	296,000
Stock-based compensation	656,000	625,000
Provision for bad debt expense	1,290,000	—
Loss on debt extinguishment	—	1,333,000
Employee stock purchase plan compensation	—	103,000
Changes in operating assets and liabilities:		
Accounts receivable	1,795,000	(469,000)
Inventory	(1,037,000)	(1,954,000)
Prepaid expenses and other current assets	244,000	288,000
Accounts payable	150,000	2,257,000
Accrued expenses and contract liabilities	(1,006,000)	(368,000)
Net cash used in operating activities	(15,250,000)	(12,868,000)
Investing Activities:		
Purchases of property and equipment	—	(30,000)
Net cash used in investing activities	—	(30,000)
Financing activities:		
Proceeds from issuance of term debt, net of issuance costs	—	19,207,000
Repayment of term-loan debt	(5,000,000)	(10,812,000)
Proceeds from PPP Loan	1,775,000	—
Proceeds from borrowing from line of credit	760,000	1,106,000
Repayments of borrowing from line of credit	(2,258,000)	(306,000)
Proceeds from sale of common stock, net of offering costs	16,366,000	2,410,000
Proceeds from sale of common stock under employee stock purchase plan	21,000	—
Proceeds from warrant and option exercises	3,469,000	65,000
Net cash provided by financing activities	15,133,000	11,670,000
Net decrease in cash and cash equivalents	(117,000)	(1,228,000)
Cash and cash equivalents at beginning of period	17,311,000	16,523,000
Cash and cash equivalents at end of period	$ 17,194,000	$ 15,295,000
Supplemental cash flow disclosures:		
Cash paid for interest	$ 715,000	$ 245,000
Supplemental disclosure of non-cash investing and financing activities:		
Property and equipment costs incurred but not paid included in accounts payable and accrued expenses	$ —	$ 9,000
Fair value of warrants issued with debt	$ —	$ 630,000
Transfer of instruments and servers from inventory to property and equipment	$ 1,191,000	$ —
Issue common stock for covenant waiver	$ 300,000	
Fair value of stock issued with debt	$ —	$ 202,000

See accompanying notes to the condensed consolidated financial statements

BIONANO GENOMICS, INC.
NOTES TO CONDENSED FINANCIAL STATEMENTS
(Unaudited)

1. Organization and Basis of Presentation

Description of Business

Bionano Genomics, Inc. (collectively, with its consolidated subsidiary, the “Company”) is a life sciences instrumentation company in the genome analysis space. The Company currently develops and markets the Saphyr system, a platform for ultra-sensitive and ultra-specific structural variation detection that enables researchers and clinicians to accelerate the search for new diagnostics and therapeutic targets and to streamline the study of changes in chromosomes, which is known as cytogenetics.

Basis of Presentation

The accompanying financial information has been prepared by the Company pursuant to the rules and regulations of the Securities and Exchange Commission for interim reporting purposes. The condensed consolidated financial statements are unaudited. The unaudited condensed consolidated financial statements reflect, in the opinion of the Company's management, all adjustments, consisting of only normal recurring adjustments, necessary for a fair presentation of financial position, results of operations, changes in equity, and comprehensive loss and cash flows for each period presented in accordance with United States generally accepted accounting principles (“U.S. GAAP”). All intercompany transactions and balances have been eliminated. These interim condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and related notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019. Certain prior year numbers were reclassified to conform with current year presentation. Such reclassification had no impact on the previously reported results of operations.

Going Concern

The Company is required to perform an analysis regarding its ability to continue as a going concern. The Company must evaluate whether there are conditions and events that raise substantial doubt about the Company’s ability to continue as a going concern and to meet its obligations as they become due within one year after the date that the financial statements are issued. If the Company concludes that substantial doubt is raised, the Company is also required to consider whether its plans alleviate that doubt.

The Company has experienced recurring net losses from operations, negative cash flows from operating activities, financial covenant breaches, and significant accumulated deficit since its inception and expects to continue to incur net losses into the foreseeable future. The Company had an accumulated deficit of $121.2 million as of June 30, 2020. The Company had cash and cash equivalents of $17.2 million as of June 30, 2020. Management expects operating losses and negative cash flows to continue for at least the next year as the Company continues to incur costs related to research and commercialization efforts. Management has prepared cash flow forecasts which indicate that based on the Company’s expected operating losses, negative cash flows and debt obligations, there is substantial doubt about the Company’s ability to continue as a going concern within twelve months after the date these financial statements are issued.

COVID-19 continues to spread in the United States and globally and as a result the Company is subject to additional risks and uncertainties. The degree to which the Company's business will be affected by the COVID-19 pandemic is highly uncertain. The negative effects of COVID-19 could continue to have a material impact on the Company’s financial results. To comply with various applicable guidelines and legal requirements in the jurisdictions in which the Company operates, the Company has temporarily reduced its business operations in response to stay-at-home orders, travel restrictions and other social distancing measures. The Company’s manufacturing partners, suppliers, and customers, have implemented similar operational reductions. This overall reduction in activity has contributed to a decrease in sales which has negatively impacted the Company’s first and second quarter 2020 financial results. Future effects of COVID-19 are unknown and the Company’s financial results may continue to be negatively affected in the future.

There may be long-term negative effects of the COVID-19 pandemic, even after it has subsided. Specifically, product demand may be reduced due to an economic recession, a decrease in corporate capital expenditures, prolonged unemployment, reduction in consumer confidence, or any similar negative economic condition. These negative effects could have a material impact on the Company’s operations, business, earnings, and liquidity.

The Company’s ability to continue as a going concern is dependent upon its ability to raise additional funding. The Company will need to raise additional capital through equity offerings or debt financings to fulfill its operating and capital requirements for at least 12 months and to maintain compliance with certain financial covenants in the Innovatus LSA (as defined below). To raise such additional capital, the Company may pursue equity or debt financings, strategic collaborations, licensing arrangements, asset sales, or other arrangements. However, the Company may not be able to secure such financing in a timely manner or on favorable terms, if at all, and may not be able to comply with current covenants.

Furthermore, if the Company issues equity securities to raise additional funds, its existing stockholders may experience dilution, and the new equity securities may have rights, preferences and privileges senior to those of the Company’s existing stockholders. If the Company raises additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to its products or proprietary technologies or grant licenses on terms that are not favorable to the Company. If the Company does not have or is not able to obtain sufficient funds, it may have to reduce commercialization efforts or delay its development of new products. The Company also may have to reduce marketing, customer support or other resources devoted to its products or cease operations. As a result, the aforementioned conditions, among others, raise substantial doubt about the Company's ability to continue as a going concern within one year after the date these financial statements are issued. Such financial statements have been prepared on a going concern basis, which contemplates the realization of assets and settlement of liabilities in the normal course of business, and do not include any adjustments to reflect the outcome of this uncertainty.

As a publicly-traded company listed on The Nasdaq Stock Market LLC ("Nasdaq"), the Company is required to comply with rules and regulations issued by Nasdaq. If the Company is not able to comply with such rules and regulations, which it has not met from time-to-time since the Company's initial public offering in August 2018, the Company may not be able to maintain its Nasdaq listing.

In April 2020, we received a Notice (the “Notice”) from The Nasdaq Stock Market LLC (“Nasdaq”) advising us that for 30 consecutive trading days preceding the date of the Notice, the bid price of our common stock had closed below the $1.00 per share minimum required for continued listing on The Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2) (the “Minimum Bid Price Requirement”). The Notice has no effect on the listing of our common stock at this time, and our common stock continues to trade on The Nasdaq Capital Market under the symbol “BNGO.” We intend to monitor the closing bid price of our common stock and may, if appropriate, consider implementing available options to regain compliance with the Minimum Bid Price Requirement.

Significant Accounting Policies

During the six months ended June 30, 2020, there were no changes to the Company's significant accounting policies as described in the Company's Annual Report on Form 10-K for the year ended December 31, 2019.

Recently Issued But Not Yet Adopted Accounting Pronouncements

In April 2012, the Jump-Start Our Business Startups Act (the “JOBS Act”) was signed into law. The JOBS Act contains provisions that, among other things, reduce certain reporting requirements for an emerging growth company. As an emerging growth company, the Company may elect to adopt new or revised accounting standards when they become effective for non-public companies, which typically is later than when public companies must adopt the standards. The Company has elected to take advantage of the extended transition period afforded by the JOBS Act and, as a result, will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for emerging growth companies, which are the dates included below.

In February 2015, the FASB issued Accounting Standards Update ("ASU") 2016-2, *Leases (Topic 842)*, which amends the accounting guidance for leases and increases transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and requires disclosures of key information about leasing arrangements. ASU 2016-2 initially mandated a modified retrospective transition method, however, in July 2018, the FASB issued ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, which amends ASU 2016-2, permitting entities the option to adopt this standard prospectively with a cumulative-effect adjustment to opening equity in the year of adoption and include required disclosures for prior periods but will not restate prior periods. The Company anticipates implementing the accounting guidance for leases using the alternative method beginning with the annual reporting period ending December 31, 2022 and interim reporting periods in 2023. The Company is in the process of evaluating the impact of adoption of the lease accounting guidance on the consolidated financial statements.

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. The standard is effective for the company beginning in the first quarter of 2023, with early adoption permitted. the Company is currently evaluating the expected impact of *ASU 2016-13* on its financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity ("ASU 2020-06")*, which simplifies accounting for convertible instruments by removing major seperation models required under current U.S. GAAP. *ASU 2020-06* removes certain settlement conditions that are required for equity contracts to qualify for the derivative scope exceptions and also simplifies the diluted earnings per share calculation in certain areas. The standard is effective for public business entities, excluding entities eligible to be smaller reporting companies as defined by the SEC, for fiscal years and interim periods within those fiscal years, beginning December 15, 2021. For all other entities, the standard will be effective for fiscal years beginning after December 15, 2023. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, and adoption must be as of the beginning of the Company's annual fiscal year. The company is currently evaluating the impact of this standard on its consolidated financial statements and related disclosures.

2. Net Loss Per Share

Basic net loss per share is calculated by dividing the net loss by the weighted-average number of common shares outstanding for the period. Diluted net loss per share is computed by dividing the net loss by the weighted average number of common shares and common share equivalents outstanding for the period. Common stock equivalents are only included when their effect is dilutive. The Company’s potentially dilutive securities which include outstanding stock options under the Company’s equity incentive plan have been excluded from the computation of diluted net loss per share as they would be anti-dilutive to the net loss per share. For all periods presented, there is no difference in the number of shares used to calculate basic and diluted shares outstanding due to the Company’s net loss position.

Potentially dilutive securities not included in the calculation of diluted net loss per share attributable to common stockholders because to do so would be anti-dilutive are as follows (in common stock equivalent shares):

	June 30, 2020	June 30, 2019
Stock options	2,988,000	1,717,000
Warrants	79,914,000	4,224,000
Total	82,902,000	5,941,000

3. Revenue Recognition

Revenue by Source

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Instruments	$ 229,000	$ 1,591,000	$ 763,000	$ 2,892,000
Consumables	711,000	430,000	1,160,000	816,000
Total product revenue	940,000	2,021,000	1,923,000	3,708,000
Service and other	242,000	154,000	395,000	319,000
Total revenue	$ 1,182,000	$ 2,175,000	$ 2,318,000	$ 4,027,000

Revenue by Geographic Location

	Three Months Ended June 30,				Six Months Ended June 30,			
	2020		2019		2020		2019	
	$	%	$	%	$	%	$	%
North America	$ 788,000	66 %	$ 1,379,000	64 %	$ 1,514,000	66 %	$ 2,218,000	55 %
EMEIA	315,000	27 %	507,000	23 %	705,000	30 %	1,425,000	35 %
Asia Pacific	79,000	7 %	289,000	13 %	99,000	4 %	384,000	10 %
Total	$ 1,182,000	100 %	$ 2,175,000	100 %	$ 2,318,000	100 %	$ 4,027,000	100 %

The table above provides revenue from contracts with customers by business and geographic region on a disaggregated basis. North America consists of the United States and Canada. EMEIA consists of Europe, the Middle East, India and Africa. Asia

Pacific includes China, Japan, South Korea, Singapore and Australia. For the three months ended June 30, 2020 and 2019, the United States represented 60% and 63% of total revenue, and for the six months ended June 30, 2020 and 2019, 63% and 55%, respectively.

Remaining Performance Obligations

As of June 30, 2020, the estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied was $373,000. These remaining performance obligations primarily relate to extended warranty and support and maintenance obligations. The Company expects to recognize approximately 44% of this amount as revenue during the remainder of 2020, 52% in 2021 and 4% in 2022. Warranty revenue is included in Service and other revenue.

The Company recognized revenue of $106,000 and $67,000 during the three months ended June 30, 2020 and 2019, respectively, and revenue of $232,000 and $156,000 during the six months ended June 30, 2020 and 2019, respectively, which was included in the contract liability balance at the end of the previous year.

Concentrations

As of June 30, 2020 and December 31, 2019, one customer represented 14% and 10%, respectively, of the Company's accounts receivable balance.

4. Balance Sheet Account Details

	June 30, 2020	December 31, 2019
Accounts receivable, net:		
Accounts receivable, trade	$ 5,094,000	$ 6,889,000
Less allowance for doubtful accounts	(1,845,000)	(555,000)
	$ 3,249,000	$ 6,334,000

The Company extends credit to its customers in the normal course of business based upon an evaluation of each customer’s credit history, financial condition, and other factors. Estimates of allowances for doubtful accounts are determined by evaluating individual customer circumstances, historical payment patterns, length of time past due, and economic and other factors. During the three and six months ended June 30, 2020, the Company recorded bad debt expense of $332,000 and $1,290,000 respectively. These amounts are included in selling, general and administrative expenses.

	June 30, 2020	December 31, 2019
Inventory:		
Materials and supplies	$ 2,180,000	$ 951,000
Finished goods	1,110,000	2,493,000
	$ 3,290,000	$ 3,444,000

5. Debt

Paycheck Protection Program

On April 17, 2020, the Company received loan proceeds of approximately $1.8 million (the “PPP Loan”) pursuant to the Paycheck Protection Program (“the PPP”) under the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) administered by the U.S. Small Business Administration (the “SBA”).

The PPP Loan is scheduled to mature on April 17, 2022 (the “Maturity Date”), bears interest at a rate of 1.00% per annum, and is subject to the standard terms and conditions applicable to loans administered by the SBA under the CARES Act.

The PPP Loan is evidenced by a promissory note, dated as of April 17, 2020, issued by East West Bank (the "PPP Lender"), which contains customary events of default relating to, among other things, payment defaults and breaches of representations and warranties. Upon an event of default under the PPP Note, the PPP Lender may, among other things, require immediate payment of all amounts owing under the PPP Note or file suit and obtain judgment. Under the terms of the CARES Act, recipients of loans under the PPP can apply for and be granted forgiveness for all or a portion of such loan granted under the PPP. Such forgiveness will be determined, subject to limitations, based on the use of loan proceeds for payment of payroll costs and certain other eligible costs (the "Eligible Costs"). Pursuant to the Paycheck Protection Program Flexibility Act (the "PPPFA"), enacted on June 5, 2020, the Company may continue to use loan proceeds on Eligible Costs through October 2, 2020, or the date that is 24 weeks from the PPP Loan origination date (the "Covered Period"). The Company is continuing to evaluate guidance released by the SBA regarding qualification for forgiveness of the PPP Loan, however, no assurance is provided that forgiveness for any portion of the Company's PPP Loan will be obtained.

Under the PPPFA, payments of principal and interest due under the PPP Loan are deferred until the date on which the SBA remits the forgiveness amount, if any, back to the PPP Lender, or if forgiveness isn't sought within 10 months after the last day of the Covered Period, until the date that is 10 months from the last day of the Covered Period. The amounts outstanding under the PPP Loan may be prepaid by the Company at any time prior to maturity without penalty.

In order to apply for the PPP Loan, the Company was required to certify, among other things, that the current economic uncertainty made the PPP Loan request necessary to support the Company's ongoing operations. This certification further required the Company to take into account the maintenance of its workforce, the Company's need for additional funding to continue operations, and the Company's ability to access alternative forms of capital in the current market environment to offset the effects of the COVID-19 pandemic.

Loan Agreements

The carrying value of the Company's debt for the periods presented was as follows:

	June 30, 2020	December 31, 2019
Term Loans	$ 15,741,000	$ 20,473,000
Revolver	—	1,498,000
PPP Loan	1,775,000	—
Total principal	17,516,000	21,971,000
Less unamortized debt issuance costs	(1,803,000)	(1,886,000)
Total carrying value of debt	$ 15,713,000	$ 20,085,000

In March 2019, the Company entered into a Loan and Security Agreement (the "Innovatus LSA") by and among Innovatus Life Sciences Lending Fund I, LP, a Delaware limited partnership ("Innovatus"), as collateral agent and the lenders listed on Schedule 1.1 thereto, including East West Bank. The Innovatus LSA provided a first term loan of $17.5 million, a second term loan of $2.5 million and a third term loan of $5.0 million (collectively, "Term Loans") if the Company satisfied certain funding conditions. Interest on the Term Loans is due on the first of each month at a rate of 10.25% per annum in cash or a discounted rate of 7.25% in cash with 3.0% of the 10.25% per annum rate added to the principal of the loan and subject to accruing interest through the end of the interest only payment period, which ends March 1, 2022. At inception, the Company elected to pay interest in cash at a rate of 7.25% per annum and have 3.0% per annum of the interest added back to the outstanding principal. As of June 30, 2020, the effective interest rate, including debt issuance costs, for Term Loans was 16.7%. Beginning in April 2022, the Company must make 24 equal monthly payments of principal and interest with a final maturity date in March 2024, which may be earlier due to an event of default if not cured within time specified.

The Innovatus LSA also provides for a revolving line of credit in an amount not to exceed $5.0 million (the "Revolver"). The Company may repay and reborrow amounts under the Revolver at any time prior to the March 1, 2024 maturity date without penalty or premium. The outstanding balance of amounts borrowed under the Revolver bears interest at a rate equal to 2.0% above the variable rate of interest, per annum, as specified in the terms of the Revolver.

The Innovatus LSA is collateralized by substantially all of the Company's assets, including its intellectual property. The Innovatus LSA requires the Company to comply with various affirmative and negative covenants, including: (1) a liquidity covenant requiring the Company to maintain a minimum cash balance at all times in a collateral account; (2) a revenue covenant requiring the Company to meet certain minimum revenue targets measured at the end of each calendar quarter. The Innovatus LSA also includes standard events of default, including a provision that Innovatus could declare an event of default upon the occurrence of any event that it interprets as having a material adverse change in the Company's business, operations, or condition, a material impairment on the Company's ability to pay the secured obligations under the Innovatus LSA, or upon a material adverse effect on the collateral under the agreement, thereby requiring us to repay the loan immediately, together with a prepayment fee and other applicable fees. As of June 30, 2020, the Company has not received any notification or indication from Innovatus to invoke the material adverse change clause. However, due to the Company's current cash flow position and the substantial doubt about its ability to continue as a going concern, the entire principal amount of the Term Loans are presented as short-term. The Company will continue to evaluate the debt classification on a quarterly basis and evaluate for reclassification in the future should its financial condition improve.

As of December 31, 2019, the Company did not achieve certain financial covenants under the Innovatus LSA. As a result, in March 2020, the Company and Innovatus entered into an amendment to the Innovatus LSA (the "Second Amendment") to, among other things: (i) waive the events of default from not achieving the specific financial covenants for the December 31, 2019 measurement date, (ii) require an immediate partial repayment of $2.1million, (iii) require an additional partial repayment of $2.9 million on the earlier of completion of an Equity Event (as defined in the Second Amendment), or April 30, 2020, (iv) modify the liquidity covenant, such that the Company's minimum cash balance shall vary based on outstanding borrowing capacity under the Revolver (provided, however, that the Company shall maintain a minimum cash balance of $2 million at any given time), (v) reduce the dollar amount of certain minimum revenue covenants and (vi) modify the terms of certain events of default. For example, the Second Amendment provides for a cure period in connection with the breach of certain minimum revenue financial covenants, as long as the Company submits an updated management plan and financial projections, which are subject to Innovatus approval, and completes a Qualified Financing Event (as defined in the Second Amendment) within 45 days of such breach.

In connection with the Second Amendment, the Company was obligated to pay Innovatus a waiver fee in the amount of $200,000 and a prepayment fee of $100,000, payable in cash or in shares of the Company's common stock at the Company's election, no later than following completion of the Equity Event. As described in Note 6 below, the Company completed the follow-on offering in April 2020 that constituted an Equity Event under the Second Amendment. A portion of the proceeds from the follow-on offering were used to pay-down $2.9 million of principal balance outstanding under the Innovatus term loan in accordance with the Second Amendment. In addition, the Company issued 872,601 shares of its common stock to Innovatus to satisfy the $200,000 waiver fee and $100,000 prepayment fee due under the Second Amendment.

The Company was in compliance with all financial covenants under the Innovatus LSA for the three months ended June 30, 2020.

6. Stockholders' Equity and Stock-Based Compensation

Follow-on Public Offering

In April 2020, the Company completed an underwritten public offering of 16,896,000 shares of its common stock and, to certain investors, pre-funded warrants to purchase 37,650,000 shares of its common stock, and accompanying common warrants to purchase up to an aggregate of 54,546,000 shares of its common stock. Each share of common stock and pre-funded warrant to purchase one share of common stock was sold together with a common warrant to purchase one share of common stock. The public offering price of each share of common stock and accompanying common warrant was $0.33 and $0.329 for each pre-funded warrant. The pre-funded warrants are immediately exercisable at a price of $0.001 per share of common stock. The common warrants are immediately exercisable at a price of $0.33 per share of common stock and will expire five years from the date of issuance. The shares of common stock and pre-funded warrants, and the accompanying common warrants, were issued separately and were immediately separable upon issuance. The gross proceeds to the Company were approximately $18.0 million before deducting underwriting discounts and commissions and other offering expenses.

Stock Warrants

A summary of the Company's warrant activity for the six months ended June 30, 2020 was as follows:

	Shares of Stock under Warrants	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2020	24,406,000	$ 1.76	4.82	$ 7,933,000
Granted	95,396,000	0.22	4.78	
Exercised	(39,888,000)	0.09		15,863,000
Canceled	—			
Outstanding at June 30, 2020	79,914,000	$ 0.76	4.62	$ 18,232,000
Vested and exercisable at June 30, 2020	79,914,000	$ 0.76	4.62	$ —

Warrant Exercise Update

From July 1, 2020 through August 12, 2020, the Company has received gross proceeds of approximately $13.9 million pursuant to the exercise of outstanding and common and pre-funded warrants to purchase an aggregate of 46,505,000 shares of the Company's common stock.

Warrant Inducement

As previously reported, the Company issued warrants (the "Original Warrants") to purchase shares of the Company's Common Stock to certain investors in the Company's underwritten public offering completed on October 23, 2019. The Original Warrants were immediately exercisable upon issuance at an exercise price per share of $0.86 and are set to expire on October 23, 2024.

On March 2, 2020, the Company entered into a Warrants Amendment and Agreement (the "Inducement Agreement") with certain holders ("Holders") of the Original Warrants that are exercisable for an aggregate of up to 3,200,000 shares of Common Stock. The Inducement Agreement provided that, commencing immediately following the delivery to the Holders of a prospectus supplement (the "Prospectus Supplement") relating to the impact of the Inducement Agreement on the Original Warrants and ending at 9:15 a.m. Eastern Time on the business day following the date of such delivery (the "Modified Exercise Price Term"), the exercise price per share for the Original Warrants will be equal to $0.75 but only with respect to a cash exercise under Section 1(a) of the Original Warrants. In addition, the Company and each Holder agreed that if and only if the Holders exercise for cash all of their Original Warrants as amended pursuant to the Inducement Agreement during the Modified Exercise Price Term, the Company will issue to each Holder a new warrant (collectively, the "New Warrants") to purchase up to the same number of shares of Common Stock issued to such Holder pursuant to the exercise of its Original Warrant during the Modified Exercise Price Term.

The Company delivered the Prospectus Supplement on March 2, 2020 and each Holder exercised all of their Original Warrants for cash. As a result, on March 3, 2020, the Company issued the New Warrants to the Holders. The New Warrants are exercisable at an exercise price per share of $1.06 commencing on the six-month anniversary of the issuance date, and will terminate on the date that is five years, six months following the issuance date. The New Warrants and the shares of Common Stock issuable upon exercise of the New Warrants were not registered under the Securities Act of 1933, as amended (the "Securities Act"), and were offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act.

Stock-Based Compensation

Stock Options

A summary of the Company's stock option activity for the six months ended June 30, 2020 was as follows:

	Shares of Stock under Stock Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2020	1,743,000	$ 5.73	8.2	$ 4,000
Granted	1,591,000	0.88		
Exercised	—	—		$ —
Canceled	(346,000)	4.04		
Outstanding at June 30, 2020	2,988,000	$ 3.34	8.46	$ 22,000
Vested and exercisable at June 30, 2020	1,021,000	$ 5.65	6.93	$ —

For the three months ended June 30, 2020 and 2019, the Company granted to its employees options to purchase 443,000 and 42,000 shares with a weighted average exercise price of $0.46 and $3.00 per share, respectively. For the six months ended June 30, 2020 and 2019, the Company granted to its employees options to purchase 1,591,000 and 545,000 shares with a weighted average exercise price of $0.88 and $4.15 per share, respectively.

For the three months ended June 30, 2020 and 2019, the weighted-average grant date fair value of stock options granted was $0.30 and $1.71 per share, respectively. For the six months ended June 30, 2020 and 2019, the weighted-average grant date fair value of stock options granted was $0.55 and $2.37 per share, respectively.

The Company recognized stock-based compensation expense for the periods presented were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Research and development	$ 66,000	$ 58,000	$ 133,000	$ 111,000
General and administrative	262,000	278,000	523,000	514,000
Total stock-based compensation expense	$ 328,000	$ 336,000	$ 656,000	$ 625,000

The weighted-average assumptions used in the Black-Scholes option pricing model to determine the fair value of the employee stock option grants during the periods presented were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Risk-free interest rate	0.4 %	2.0 %	1.1 %	2.4 %
Expected volatility	77.9 %	66.1 %	72.2 %	67.3 %
Expected term (in years)	5.5	5.4	5.9	5.0
Expected dividend yield	0.0 %	0.0 %	0.0 %	0.0 %

7. Legal Proceedings

The Company is subject to potential liabilities under various claims and legal actions that are pending or may be asserted. These matters arise in the ordinary course and conduct of the business. The Company intends to continue to defend itself vigorously in such matters. The Company regularly assesses contingencies to determine the degree of probability and range of possible loss for potential accrual in the financial statements. An estimated loss contingency is accrued in the financial statements if it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Based on the Company’s assessment, it currently does not have any amount accrued as it is not a defendant in any claims or legal actions.

8. Income Taxes

The Company is subject to taxation in the United States, United Kingdom and various state jurisdictions. The Company computes its quarterly income tax provision by using a forecasted annual effective tax rate and adjusts for any discrete items arising during the quarter. The primary difference between the effective tax rate and the federal statutory tax rate relates to the full valuation allowance on the Company's U.S. net operating losses.

In response to the COVID-19 pandemic, the Coronavirus Aid, Relief and Economic Security Act ("CARES Act") was signed into law on March 27, 2020. The CARES Act, among other things, includes tax provisions relating to refundable payroll tax credits, deferment of employer's social security payments, net operating loss utilization and carryback periods, modifications to the net interest deduction limitations and technical corrections to tax depreciation methods for qualified improvement property (QIP). The CARES Act did not have a material impact on the Company's income tax provision for the three months ended June 30, 2020. The Company continues to evaluate the impact of the CARES Act on its financial position, results of operations and cash flows.

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 unaudited consolidated financial statements and related notes included in this Quarterly Report on Form 10-Q and the audited consolidated financial statements and notes thereto as of and for the year ended December 31, 2019 and the related Management's Discussion and Analysis of Financial Condition and Results of Operations, both of which are contained in our Annual Report on Form 10-K, or our Annual Report, filed with the Securities and Exchange Commission, or the SEC, on March 10, 2020. Unless the context requires otherwise, references in this Quarterly Report on Form 10-Q to "we," "us," and "our" refer to Bionano Genomics, Inc.

Forward-Looking Statements

The information in this discussion contains forward-looking statements and information within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, which are subject to the "safe harbor" created by those sections. These forward-looking statements include, but are not limited to any statements concerning the potential effects of the COVID-19 pandemic on our business , statements concerning our strategy, future operations, future financial position, future revenues, projected costs, prospects and plans and objectives of management. The words "anticipates," "believes," "estimates," "expects," "intends," "may," "plans," "projects," "will," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions, or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements that we make. These forward-looking statements involve risks and uncertainties that could cause our actual results to differ materially from those in the forward-looking statements, including, without limitation, the risks set forth in our filings with the SEC. The forward-looking statements are applicable only as of the date on which they are made, and we do not assume any obligation to update any forward-looking statements.

Overview

We are a life sciences instrumentation company in the genome analysis space. We develop and market the Saphyr system, a platform for ultra-sensitive and ultra-specific structural variation detection that enables researchers and clinicians to accelerate the search for new diagnostics and therapeutic targets and to streamline the study of changes in chromosomes, which is known as cytogenetics. Our Saphyr system comprises an instrument, chip consumables, reagents and a suite of data analysis tools.

We have incurred losses in each year since our inception. Our net losses were $8.1 million and $7.7 million for the three months ended June 30, 2020 and 2019, respectively, and $18.6 million and $15.5 million for the six months ended June 30, 2020 and 2019, respectively. As of June 30, 2020, we had an accumulated deficit of $121.2 million.

We expect to continue to incur significant expenses and operating losses as we:

- expand our sales and marketing efforts to further commercialize our products;
- continue research and development efforts to improve our existing products;
- hire additional personnel;
- enter into collaboration arrangements, if any;
- add operational, financial and management information systems; and
- incur increased costs as a result of operating as a public company.

COVID-19 Overview

The COVID-19 pandemic, and the measures imposed to contain this pandemic in areas where we operate our business and elsewhere have disrupted and are expected to continue to impact our business. For example, to comply with applicable regulations and to safeguard the health and safety of our employees and customers, we temporarily reduced our on-site business operations, implemented work-from-home practices, and modified other business practices, including those related to employee travel and physical participation in meetings, events, and conferences. In addition, the quarantine of our personnel and the inability to access our facilities or customer sites adversely affected, and is expected to continue to adversely affect, our operations.

During the six months ended June 30, 2020, we experienced a $1.7 million decrease in revenue, as compared to the same period of the prior year, which is largely due to the COVID-19 pandemic. While the COVID-19 pandemic did not prevent us from operating our business during the six months ended June 30, 2020, we have taken steps to reduce our cash used in operations to offset the decrease in cash generated from sales. For example, on April 15, 2020, our Board of Directors approved the implementation of temporary salary reductions for certain of our executive officers and other employees, including 50% salary reductions for Erik Holmlin, President and Chief Executive Officer, Mark Oldakowski, Chief Operating Officer, and Warren Robinson, Chief Commercial Officer. These reductions were effective for two months beginning on April 16, 2020 and ended on June 15, 2020. Also in April 2020, we implemented salary reductions for most of our salaried employees and reduced the number of working hours of most of our hourly employees by 25% , with such measures also ending on June 15, 2020.

These disruptions resulting from the COVID-19 pandemic, may continue to impact our operations and overall business. The impact of COVID-19 is evolving rapidly and its future effects remain uncertain. As a result of such uncertainties, the duration of the disruption and the related impact on our business, operating results and financial condition cannot be reasonably estimated at this time. We are continuing to closely monitor the impact of the COVID-19 pandemic on our business and are taking proactive efforts designed to protect the health and safety of our workforce, continue our business operations and advance our corporate objectives.

Financial Overview

Revenue

We generate product revenue from sales of our instruments and consumables. We currently sell our products for research use only applications and our customers are primarily laboratories associated with academic and governmental research institutions, as well as pharmaceutical, biotechnology and contract research companies. Consumable revenue consists of sales of complete assays which are developed internally by us, plus sales of kits which contain all the elements necessary to run tests. Other revenue consists of warranty and other service-based revenue.

The following table presents our revenue for the periods presented:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Product revenue	$ 940,000	$ 2,021,000	$ 1,923,000	$ 3,708,000
Service and other revenue	242,000	154,000	395,000	319,000
Total	$ 1,182,000	$ 2,175,000	$ 2,318,000	$ 4,027,000

The following table reflects total revenue by geography and as a percentage of total revenue, based on the billing address of our customers. North America consists of the United States and Canada. EMEIA consists of Europe, Middle East, India and Africa. Asia Pacific includes China, Japan, South Korea, Singapore and Australia.

	Three Months Ended June 30,				Six Months Ended June 30,			
	2020		2019		2020		2019	
	$	%	$	%	$	%	$	%
North America	$ 788,000	66 %	$ 1,379,000	64 %	$ 1,514,000	66 %	$ 2,218,000	55 %
EMEIA	315,000	27 %	507,000	23 %	705,000	30 %	1,425,000	35 %
Asia Pacific	79,000	7 %	289,000	13 %	99,000	4 %	384,000	10 %
Total	$ 1,182,000	100 %	$ 2,175,000	100 %	$ 2,318,000	100 %	$ 4,027,000	100 %

Cost of Revenue

Cost of product revenue for our instruments and consumables includes costs from the manufacturer, raw material parts costs and associated freight, shipping and handling costs, contract manufacturer costs, salaries and other personnel costs, overhead and other direct costs related to those sales recognized as product revenue in the period. Cost of service and other revenue consists of salaries and other personnel costs and costs related to warranties and other costs of servicing equipment at customer sites.

Research and Development Expenses

Research and development expenses consist of salaries and other personnel costs, stock-based compensation, research supplies, third-party development costs for new products, materials for prototypes, and allocated overhead costs that include facility and other overhead costs. We have made substantial investments in research and development since our inception, and plan to continue to make investments in the future. Our research and development efforts have focused primarily on the tasks required to support development and commercialization of new and existing products. We believe that our continued investment in research and development is essential to our long-term competitive position.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of salaries and other personnel costs, and stock-based compensation for our sales and marketing, finance, legal, human resources and general management, as well as professional services, such as legal and accounting services.

Results of Operations

Comparison of the Three Months Ended June 30, 2020 and 2019

The following table sets forth our results of operations for the three months ended June 30, 2020 and 2019:

	Three Months Ended June 30,		Period-to-Period Change	
	2020	2019	$	%
Revenues:				
Product revenue	$ 940,000	$ 2,021,000	$ (1,081,000)	(53.5)%
Service and other revenue	242,000	154,000	88,000	57.1 %
Total revenue	1,182,000	2,175,000	(993,000)	(45.7)%
Cost of revenue:				
Cost of product revenue	515,000	1,525,000	(1,010,000)	(66.2)%
Cost of other revenue	88,000	30,000	58,000	193.3 %
Total cost of revenue	603,000	1,555,000	(952,000)	(61.2)%
Operating expenses:				
Research and development	2,401,000	2,408,000	(7,000)	(0.3)%
Selling, general and administrative	5,613,000	5,056,000	557,000	11.0 %
Total operating expenses	8,014,000	7,464,000	550,000	7.4 %
Loss from operations	(7,435,000)	(6,844,000)	(591,000)	8.6 %
Other income (expenses):				
Interest expense	(561,000)	(645,000)	84,000	(13.0)%
Other income (expenses)	(73,000)	(171,000)	98,000	(57.3)%
Total other income (expenses)	(634,000)	(816,000)	182,000	(22.3)%
Loss before income taxes	(8,069,000)	(7,660,000)	(409,000)	5.3 %
Provision for income taxes	(5,000)	(5,000)	—	— %
Net loss	$ (8,074,000)	$ (7,665,000)	$ (409,000)	5.3 %

Revenue

Total revenue decreased by $1.0 million, or 45.7%, to $1.2 million for the three months ended June 30, 2020 compared to $2.2 million for the same period in 2019. The decrease impacted all regions, largely driven by customers temporarily shutting down their lab operations in response to COVID-19 shelter-at-home orders. Below is a summary of changes for the three months ended June 30, 2020 as compared to the same period in 2019:

- North America revenue decreased by $0.6 million, or 43%;
- EMEIA revenue decreased by $0.2 million, or 38%; and
- Asia Pacific revenue decreased by $0.2 million, or 73%.

Cost of Revenue

Total cost of revenue decreased by $1.0 million, or 61.2%, to $0.6 million for the three months ended June 30, 2020 compared to $1.6 million for the same period in 2019. Total cost of revenue decreased for the three months ended June 30, 2020 as compared to 2019 primarily due to a decrease in the number of instruments units sold during the quarter from 8 to 1. This was partially offset by an increase in consumable units sold of 189%.

Research and Development Expenses

There was no significant change to research and development expenses during the three months ended June 30, 2020 compared to the same period in 2019.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased by $0.5 million, or 11.0%, to $5.6 million for the three months ended June 30, 2020 compared to $5.1 million for the same period in 2019. This is primarily due to headcount additions to our global sales and marketing teams as well as back-office support teams to assist with the growth of our world-wide product distribution. In addition, we incurred increased professional fees to support business operations and our international presence. Salary reductions implemented in April 2020 partially offset cost increases driven by our headcount additions.

Comparison of the Six Months Ended June 30, 2020 and 2019

The following table sets forth our results of operations for the six months ended June 30, 2020 and 2019:

	Six Months Ended June 30,		Period-to-Period Change	
	2020	2019	$	%
Revenues:				
Product revenue	$ 1,923,000	$ 3,708,000	$ (1,785,000)	(48.1)%
Service and other revenue	395,000	319,000	76,000	23.8 %
Total revenue	2,318,000	4,027,000	(1,709,000)	(42.4)%
Cost of revenue:				
Cost of product revenue	1,289,000	2,645,000	(1,356,000)	(51.3)%
Cost of other revenue	170,000	57,000	113,000	198.2 %
Total cost of revenue	1,459,000	2,702,000	(1,243,000)	(46.0)%
Operating expenses:				
Research and development	5,075,000	4,508,000	567,000	12.6 %
Selling, general and administrative	12,981,000	9,846,000	3,135,000	31.8 %
Total operating expenses	18,056,000	14,354,000	3,702,000	25.8 %
Loss from operations	(17,197,000)	(13,029,000)	(4,168,000)	32.0 %
Other income (expenses):				
Interest expense	(1,322,000)	(959,000)	(363,000)	37.9 %
Loss on debt extinguishment	—	(1,333,000)	1,333,000	— %
Other income (expenses)	(55,000)	(186,000)	131,000	(70.4)%
Total other income (expenses)	(1,377,000)	(2,478,000)	1,101,000	(44.4)%
Loss before income taxes	(18,574,000)	(15,507,000)	(3,067,000)	19.8 %
Provision for income taxes	(10,000)	(9,000)	(1,000)	11.1 %
Net loss	$ (18,584,000)	$ (15,516,000)	$ (3,068,000)	19.8 %

Revenue

Total revenue decreased by $1.7 million, or 42.4%, to $2.3 million for the six months ended June 30, 2020 compared to $4.0 million for the same period in 2019. The decrease impacted all regions, largely driven by customers temporarily shutting down their lab operations in response to COVID-19 shelter-at-home orders and related restrictions to address the pandemic. Below is a summary of changes for the six months ended June 30, 2020 as compared to the same period in 2019:

- North America revenue decreased by $0.7 million, or 32%;
- EMEIA revenue decreased by $0.7 million, or 51%; and
- Asia Pacific revenue decreased by $0.3 million, or 74%.

Cost of Revenue

Total cost of revenue decreased by $1.2 million, or 46.0%, to $1.5 million for the six months ended June 30, 2020 compared to $2.7 million for the same period in 2019. Total cost of revenue decreased for the six months ended June 30, 2020 as compared to 2019 primarily due to a decrease in the number of instruments units sold from 14 to 4. This was partially offset by an increase in consumable units sold of 120%.

Research and Development Expenses

Research and development expenses increased $0.6 million, or 12.6%, to $5.1 million for the six months ended June 30, 2020 compared to $4.5 million for the same period in 2019. This is due to headcount additions to our development teams, but slightly offset by the salary reductions implemented in April 2020. In addition, our materials and supply expense increased during the six months ended June 30, 2020 due to continued efforts to innovate our product.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased by $3.2 million, or 31.8%, to $13.0 million for the six months ended June 30, 2020 compared to $9.8 million for the same period in 2019. This is primarily due to headcount additions to our global sales and marketing teams as well as back-office support teams to assist with the growth of our world-wide product distribution. In addition, we incurred increased professional fees to support ongoing business operations and international presence. Lastly, the Company determined that its collection efforts had been exhausted for a portion of its accounts and deemed the accounts receivables balance as not collectible. As a result, the Company recognized bad debt expense of $1.3 million during the six months ended June 30, 2020.

Interest Expense

Interest expense increased $0.4 million, or 37.9%, to $1.3 million for the six months ended June 30, 2020 compared to $0.9 million for the same period in 2019, driven by changes in our term-loan debt. In March 2019, the Company retired its $10 million Credit and Security Agreement with MidCap Financial (the "CSA") and replaced it with a $20 million facility under our Loan and Security Agreement with Innovatus Life Sciences Lending Fund I, LP, as further discussed below.

Loss on Debt Extinguishment

A loss on debt extinguishment of $1.3 million was recognized during the six months ended June 30, 2019 in association with retiring the MidCap Financial CSA prior to maturity.

Liquidity and Capital Resources

Since our inception, we have incurred net losses and negative cash flows from operations. We incurred net losses of $8.1 million and $7.7 million for the three months ended June 30, 2020 and 2019, respectively, and $18.6 million and $15.5 million for the six months ended June 30, 2020 and 2019, respectively. As of June 30, 2020, we had an accumulated deficit of $121.2 million and cash and cash equivalents of $17.2 million.

Sources of Liquidity

Prior to our initial public offering (IPO) in August 2018, we financed our operations principally through private placements of convertible preferred stock, convertible notes, borrowings from credit facilities, and revenue from our commercial operations. Since our IPO, we have generated cash flows from sales of common stock and other equity instruments instead of convertible preferred stock. We anticipate that future sources of liquidity will principally come from sales of common stock and other equity instruments, borrowings from credit facilities and revenue from our commercial operations. See Note 6 to our condensed consolidated financial statements for a discussion of our recent equity activity and Note 5 to our condensed consolidated financial statements for a discussion of terms and provisions of our debt included elsewhere in this Quarterly Report on Form 10-Q for more information.

Follow-On Offering

In April 2020, we completed an underwritten public offering of 16,896,000 shares of its common stock and, to certain investors, pre-funded warrants to purchase 37,650,000 shares of its common stock, and accompanying common warrants to purchase up to an aggregate of 54,546,000 shares of its common stock. Each share of common stock and pre-funded warrant to purchase one share of common stock was sold together with a common warrant to purchase one share of common stock. The public offering price of each share of common stock and accompanying common warrant was $0.33 and $0.329 for each pre-funded warrant. The pre-funded warrants are immediately exercisable at a price of $0.001 per share of common stock. The common warrants are immediately exercisable at a price of $0.33 per share of common stock and will expire five years from the date of issuance. The shares of common stock and pre-funded warrants, and the accompanying common warrants, were issued separately and were immediately separable upon issuance. The gross proceeds to us were approximately $18.0 million, before deducting underwriting discounts and commissions and other offering expenses.

Warrant Exercise Update

From July 1, 2020 through August 12, 2020, we have received gross proceeds of approximately $13.9 million pursuant to the exercise of outstanding common and pre-funded warrants to purchase an aggregate of 46,505,000 shares of our common stock.

Cash Flows

The following table sets forth the cash flow from operating, investing and financing activities for the periods presented:

	Six Months Ended June 30,	
	2020	**2019**
Net cash provided by (used in):		
Operating activities	$ (15,250,000)	$ (12,868,000)
Investing activities	—	(30,000)
Financing activities	15,133,000	11,670,000

Operating Activities

We derive cash flows from operations primarily from the sale of our products and services. Our cash flows from operating activities are also significantly influenced by our use of cash for operating expenses to support the growth of our business. We have historically experienced negative cash flows from operating activities as we have developed our technology, expanded our business and built our infrastructure and this may continue in the future.

Net cash used in operating activities was $15.3 million during the six months ended June 30, 2020 as compared to $12.9 million during the same period in 2019. The increase in cash used in operating activities of $2.4 million is attributed to increased headcount across the business, increased professional fees to support ongoing business operations and increase our international presence, and increased investments in marketing and promotions.

Investing Activities

Historically, our primary investing activities have consisted of capital expenditures for the purchase of capital equipment to support our expanding infrastructure. We expect to continue to incur additional costs for capital expenditures related to these efforts in future periods. There was no significant cash used in investing activities during the six months ended June 30, 2020 as well as for the same period in 2019.

Financing Activities

Net cash provided by financing activities was $15.1 million during the six months ended June 30, 2020 as compared to the same period in 2019 where we had net proceeds from financing activities of $11.7 million, a decrease of $3.4 million. During the six months ended June 30, 2020, we raised approximately $16.4 million in net proceeds from a follow-on offering, and $3.5 million from warrant exercises. In addition, we received approximately $1.8 million pursuant to the PPP Loan (as defined below). Offsets included payments of $1.5 million on our revolving line of credit and $5.0 million in term-loan principal prepayments in accordance with the Second Amendment. During the six months ended June 30, 2019, we had net proceeds from the issuance of the Innovatus LSA as well as aggregate proceeds from Innovatus and Aspire Purchase Agreements of approximately $11.0 million.

Paycheck Protection Program

In April 2020, we received loan proceeds of approximately $1.8 million (the “PPP Loan”) pursuant to the Paycheck Protection Program (the “PPP”) under the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) administered by the U.S. Small Business Administration (the “SBA”). The PPP Loan is scheduled to mature in April 2022 (the “Maturity Date”), bears interest at a rate of 1.00% per annum, and is subject to the standard terms and conditions applicable to loans administered by the SBA under the CARES Act.

The PPP Loan is evidenced by a promissory note issued by East West Bank (the “Lender”). The PPP note contains customary events of default relating to, among other things, payment defaults and breaches of representations and warranties. Under the terms of the CARES Act, recipients of loans under the PPP can apply for and be granted forgiveness for all or a portion of loan granted under the PPP, with such forgiveness to be determined, subject to limitations, based on the use of loan proceeds for payment of payroll costs and certain other eligible costs (the “Eligible Costs”). Pursuant to the Paycheck Protection Program

Flexibility Act (the “PPPFA”), enacted on June 5, 2020, we may continue to use loan proceeds on Eligible Costs through October 2, 2020, or the date that is 24 weeks from the PPP Loan origination date (the “Covered Period”). However, no assurance is provided that forgiveness for any portion of the PPP Loan will be obtained.

Pursuant to the PPPFA, payments of principal and interest due under the PPP Loan are deferred until the date on which the SBA remits the forgiveness amount, if any, back to the PPP Lender, or if forgiveness isn't sought within 10 months after the last day of the Covered Period, until the date that is 10 months from the last day of the Covered Period. The amounts outstanding under the PPP Loan may be prepaid by us at any time prior to maturity without penalty.

The PPP Loan is also described in Note 5 to our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Capital Resources

We performed an analysis of our ability to continue as a going concern. We believe, based on our current business plan, that our existing cash and cash equivalents as of June 30, 2020, plus proceeds from the recent warrant exercises described above, will be sufficient to fund our operations and obligations into the first quarter of 2021. We plan to continue to fund our operations through cash and cash equivalents on hand, as well as through public or private equity or debt financings, strategic collaborations, licensing arrangements, asset sales, or other arrangements. Additional funds may not be available when needed from any source or, if available, may not be available on terms that are acceptable to us. In addition, as a result of the COVID-19 pandemic and actions taken to slow its spread, the global credit and financial markets have experienced extreme volatility, including diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. It is possible that further deterioration in credit and financial markets and confidence in economic conditions will occur. If equity and credit markets deteriorate, it may affect our ability to raise equity capital, borrow on our existing facilities or make any additional necessary debt or equity financing more difficult to obtain, more costly and/or more dilutive. In addition, while we are currently in compliance with our loan agreement, the COVID-19 pandemic may compromise our ability to comply with the terms of our loan agreement and could result in an event of default. If an event of default were to occur, our lender could accelerate our repayment obligations or enforce other rights under our loan agreements. Any such default may also require us to seek additional or alternative financing, which may not be available on commercially reasonable terms or at all.

Even if we raise additional capital, we may also be required to modify, delay or abandon some of our plans which could have a material adverse effect on our business, operating results and financial condition and our ability to achieve our intended business objectives. Any of these actions could materially harm our business, results of operations and future prospects. See Note 1 to our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for more information.

As discussed in Note 1 to our condensed consolidated financial statements included in this Quarterly Report, in April 2020, we received a Notice (the “Notice”) from The Nasdaq Stock Market LLC (“Nasdaq”) advising us that for 30 consecutive trading days preceding the date of the Notice, the bid price of our common stock had closed below the $1.00 per share minimum required for continued listing on The Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2) (the “Minimum Bid Price Requirement”). The Notice has no effect on the listing of our common stock at this time, and our common stock continues to trade on The Nasdaq Capital Market under the symbol “BNGO.” We intend to monitor the closing bid price of our common stock and may, if appropriate, consider implementing available options to regain compliance with the Minimum Bid Price Requirement.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under SEC rules, and similarly did not and do not have any holdings in variable interest entities.

Critical Accounting Policies and Estimates

Our management’s discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of our consolidated financial statements requires us to make estimates and assumptions that materially affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities in our consolidated financial statements and accompanying notes. We evaluate these estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may materially differ from these estimates under different assumptions or conditions.

There were no material changes in our critical accounting policies and estimates during the six months ended June 30, 2020.

Recent Accounting Pronouncements

See Note 1 to our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for information concerning recent accounting pronouncements.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As a smaller reporting company, we are not required to provide the information required by this Item.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act. Disclosure controls and procedures are controls and other procedures designed to ensure that the 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. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our principal executive officer and our principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

As of June 30, 2020, our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934). Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Based on the evaluation of our disclosure controls and procedures as of June 30, 2020, our principal executive and financial officer concluded that, as of such date, our disclosure controls and procedures were not effective at a reasonable assurance level as a result of the material weakness that existed in our internal control over financial reporting, as described below and previously reported in our Annual Report on Form 10-K.

Material Weaknesses in Internal Control over Financial Reporting

During the preparation of our consolidated financial statements for the year ended December 31, 2019, our management assessed the effectiveness of our internal control over financial reporting using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control-Integrated Framework (2013 Framework). Based on this assessment, our management determined that, as of December 31, 2019, there was a material weakness in our internal control environment over financial reporting because we did not have a sufficient number of resources to support the growth and complexity of our financial reporting requirements.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that a reasonable possibility exists that a material misstatement of our annual or interim financial statements would not be prevented or detected on a timely basis. The foregoing material weakness contributed to a material weakness in our control activities based on the criteria set forth in the 2013 Framework. Specifically, the design of certain controls did not adequately provide appropriate segregation of duties and allow timely completion of financial reporting and accounting activities. The failure to maintain appropriate segregation of duties had a pervasive impact and as such, this deficiency resulted in a risk that could have impacted all financial statement account balances and disclosures. The material weaknesses did not result in any identified material misstatements to our financial statements, and there were no changes to previously released financial results.

Remediation of Material Weaknesses

Management has been actively engaged in developing and implementing a remediation plan to address the material weaknesses described above. The remediation efforts that are in process or expected to be implemented include the following:

- Management has engaged external consultants to assist with our internal accounting functions and further enhance our internal controls which has increased the number of personnel involved in financial reporting.

- We are in the process of hiring a new Chief Financial Officer and other qualified individuals that will increase the number of personnel involved in financial reporting and the control environment.

The additional resources and procedures described above are designed to enable us to broaden the scope and quality of our internal review of underlying information related to financial reporting and to formalize and enhance our internal control procedures. While the implementation of improved controls and procedures is ongoing, we have determined that as of June 30, 2020 that the material weaknesses described above have not been fully remediated.

Changes in Internal Control over Financial Reporting

Other than the remediation efforts underway, as described above, and despite the fact that most of our employees are working remotely due to the COVID-19 pandemic, there were no material changes in our internal control over financial reporting during the quarter ended June 30, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

None.

ITEM 1A. RISK FACTORS

Except for the risk factors set forth below, there have been no material changes to the risk factors previously disclosed under the heading “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the Securities and Exchange Commission on March 10, 2020. The risks described in this Quarterly Report on Form 10-Q and in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 are not the only risks facing our company. 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 or future results.

Our business, and that of our customers, has been adversely affected by the effects of public health crises, including the COVID-19 pandemic. In particular, the COVID-19 pandemic has materially affected our operations globally, including at our headquarters in San Diego, California, as well as the business or operations of our research partners, customers and other third parties with whom we conduct business.

Our business could be adversely affected by health crises in regions where we have operations, concentrations of sales and marketing teams, distributors or other business operations. Such health crises could also affect the business or operations of our research partners, customers and other third parties with whom we conduct business.

In particular, the COVID-19 pandemic and the measures imposed to contain this pandemic have disrupted and are expected to continue to impact our business. Global efforts to contain the spread of COVID-19 have intensified, with the certain areas of the United States, Europe and Asia implementing severe travel restrictions, social distancing requirements and stay-at-home orders, among other restrictions. In addition, while certain geographical areas have begun gradual movement towards the easing of these COVID-19 related restrictions, reports of increased infection are leading to additional public health directives and orders that may have an unpredictable impact on our financial condition, results of operations, liquidity and cash flows.

In response to these public health directives and orders, we have implemented work-from-home policies for certain employees and temporarily scaled back our operations. We have also modified certain business practices, including those related to employee travel and cancellation of physical participation in meetings, events and conferences, and implemented new protocols to promote social distancing and enhance sanitary measures in our offices and facilities. The quarantine of our personnel and the inability to access our facilities or customer sites has adversely affected, and is expected to continue adversely affecting, our operations. For example, certain members of our workforce are now performing their duties remotely and these employees have not been able to maintain the same level of productivity and efficiency due a lack of resources that would otherwise be available to them in our offices and additional demands on their time, such as increased responsibilities resulting from school closures or the illness of family members.

The effects of these public health directives and orders and our related adjustments in our business have negatively impacted productivity, disrupted our business and delayed our timelines, the magnitude of which will depend, in part, on the length and severity of the restrictions and other limitations on our ability to conduct our business in the ordinary course. For example, in our Annual Report on Form 10-K for the year ended 2019, we made various forward-looking statements regarding our expectations for the timing of improvements in our gross margin, the speed at which we will increase sales of high-margin consumables, product improvements and study results. We have suspended our guidance, projections or outlook, as applicable, for 2020, including with respect to these forward-looking statements.

The spread of COVID-19 has resulted in a widespread health crisis that is adversely affecting the economies and financial markets of many countries, including in the United States, Europe and Asia, which has resulted in an economic downturn that may negatively affect demand for our products and services and materially affect us financially. For example, customers who have committed to order minimum quantities of consumables or to purchase our Saphyr instrument could delay or default on these commitments. Further, restrictions on our ability to travel, stay-at-home orders and other similar restrictions on our business have limited our ability to support our global and domestic operations, including providing installation and training and customer service, resulting in disruptions in our sales and marketing efforts and negative impacts on our commercial strategy. In particular, our management team frequently travels to China and a portion of our sales support team works remotely from China. Also, four of our distributors are located in China. For fiscal year 2019, we derived 14% of our total revenue from the Asia Pacific region and 5% of our total revenue from China. China, like many geographical areas around the world, has recently reported an increase in COVID-19 infections, may result in additional or modified governmental actions and restrictions in the region.

These and similar, and perhaps more severe, disruptions in our operations could negatively impact our business, operating results and financial condition. In addition, quarantines, stay-at-home, executive and similar government orders, or the perception that such orders, shutdowns or other restrictions on the conduct of business operations could occur, could disrupt our supply chain and affect customer decision-making. For example, any actual or perceived disruption in our product distribution channel could alter customer buying decisions, prompting customers to delay or cancel their orders, which would negatively impact our sales revenue and could harm our reputation. In addition, we anticipate that ongoing disruptions in our supply chain will cause shortages in the materials required to operate our instruments, therefore limiting our ability to process customer samples and the ability of users of our system to operate our system.

The spread of COVID-19, which has caused a broad impact globally, may materially affect us economically. While the economic impact brought by, and the duration of, COVID-19 may be difficult to assess or predict, the disruption of global financial markets may limit our ability to access capital, which could negatively affect our liquidity. A recession or market correction resulting from the spread of COVID-19 may continue to materially affect our business and the value of our common stock even after the outbreak of COVID-19 has subsided, due to unforeseen adverse impacts on us or our third-party manufacturers, vendors and customers.

In addition, we are subject to various affirmative and negative covenants in our loan agreement with our lender. If the effects of COVID-19 cause us to fall out of compliance with one or more of such covenants and we are unable to secure a waiver or negotiate an amendment to our loan agreement on reasonable terms, or at all, an event of default could occur, which would allow our lender to accelerate our repayment obligations or enforce its other rights under our loan agreement. Any such default may also require us to seek additional or alternative financing, which may not be available on commercially reasonable terms or at all. If we are unable to access funds to repay our lender, our lender could take control of our pledged assets. Any of the foregoing events would negatively impact our financial condition and liquidity.

The ultimate impact of the COVID-19 outbreak or a similar health epidemic is highly uncertain and subject to change. We do not yet know the full extent of potential delays or impacts on our business or the global economy as a whole, and such impacts may not be fully recoverable. In addition, the current and potential adverse impacts of the COVID-19 pandemic on our business, financial condition, results of operations and growth prospects, may also have the effect of heightening many of the other risks and uncertainties described in Part I, Item 1A. “Risk Factors” in the Annual Report as well as in this Quarterly Report. We will continue to monitor the COVID-19 situation closely.

We may not be entitled to forgiveness of our recently received Paycheck Protection Program Loan, and our application for the Paycheck Protection Program Loan could in the future be determined to have been impermissible or could result in damage to our reputation.

On April 17, 2020, we received loan proceeds of approximately $1.77 million (the “PPP Loan”) pursuant to the Paycheck Protection Program under the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) administered by the U.S. Small Business Administration (the “SBA”). We intend to use the PPP Loan to retain current employees, maintain payroll and make lease and utility payments. The PPP Loan is evidenced by a promissory note, dated as of April 17, 2020, issued by East West Bank, which contains customary events of default relating to, among other things, payment defaults and breaches of representations and warranties. The PPP Loan is scheduled to mature on April 17, 2022 (the “Maturity Date”), bears interest at a rate of 1.00% per annum, and is subject to the standard terms and conditions applicable to loans administered by the SBA under the CARES Act.

Pursuant to the Paycheck Protection Program Flexibility Act, payments on principal and interest due under the PPP Loan are deferred until the date on which the SBA remits the forgiveness amount back to East West Bank, or if forgiveness is not sought within 10 months after the last day of the Covered Period, as defined below, the date that is 10 months after the last day of the Covered Period. All interest which accrues during the deferral period will be deferred and payable on the Maturity Date. The amounts outstanding under the PPP Loan may be prepaid by us at any time prior to maturity without penalty. Under the CARES Act, as amended in June 2020, loan forgiveness is generally available for the sum of documented payroll costs, covered rent payments, covered mortgage interest and covered utilities during the 24-week period beginning on the date of the first disbursement of the PPP Loan, or the Covered Period. The amount of the PPP Loan eligible to be forgiven may be reduced in certain circumstances, including as a result of certain headcount or salary reductions. We will be required to repay any portion of the outstanding principal that is not forgiven, along with accrued interest, and we cannot provide any assurance that we will be eligible for loan forgiveness, that we will apply for forgiveness, or that any amount of the PPP Loan will ultimately be forgiven by the SBA.

In order to apply for the PPP Loan, we were required to certify, among other things, that the current economic uncertainty made the PPP Loan request necessary to support our ongoing operations. We made this certification in good faith after analyzing, among other things, the maintenance of our workforce, our need for additional funding to continue operations, and our ability to access alternative forms of capital in the current market environment to offset the effects of the COVID -19 pandemic. Following this analysis, we believe that we satisfied all eligibility criteria for the PPP Loan, and that our receipt of the PPP Loan is consistent with the broad objectives of the CARES Act. The certification described above did not contain any objective criteria and is subject to interpretation.

On April 23, 2020, the SBA issued guidance stating that it is unlikely that a public company with substantial market value and access to capital markets will be able to make the required certification in good faith. The lack of clarity regarding loan eligibility under the Paycheck Protection Program has resulted in significant media coverage and controversy with respect to public companies applying for and receiving loans. If, despite our good-faith belief that given our circumstances we satisfied all eligible requirements for the PPP Loan, we are later determined to have violated any applicable laws or regulations that may apply to us in connection with the PPP Loan or it is otherwise determined that we were ineligible to receive the PPP Loan, we may be required to repay the PPP Loan in its entirety and/or be subject to additional penalties, which could also result in adverse publicity and damage to our reputation. Should we be audited or reviewed by federal or state regulatory authorities as a result of filing an application for forgiveness of the PPP Loan or otherwise, such audit or review could result in the diversion of management’s time and attention and legal and reputational costs. If we were to be audited or reviewed and receive an adverse determination or finding in such audit or review, we could be required to return the full amount of the PPP Loan. Any of these events could have a material adverse effect on our business, results of operations and financial condition.

If we are not able to comply with the applicable continued listing requirements or standards of The Nasdaq Capital Market, Nasdaq could delist our common stock.

Our ability to publicly or privately sell equity securities and the liquidity of our common stock could be adversely affected if we are delisted from The Nasdaq Capital Market or if we are unable to transfer our listing to another stock market. In order to maintain this listing, we must satisfy minimum financial and other continued listing requirements and standards, including a requirement to maintain a minimum bid price of the Company's common stock of $1.00 per share.

In a letter dated April 22, 2020, or the Notice, we were notified by the Nasdaq Stock Market LLC, or Nasdaq, that for 30 consecutive trading days preceding the date of the Notice, the bid price of our common stock had closed below the $1.00 per share minimum required for continued listing on The Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2), or the Minimum Bid Price Requirement.

Under Nasdaq Listing Rule 5810(c)(3)(A), we have 180 calendar days following the date of the Notice to regain compliance with the Minimum Bid Price Requirement. However, due to recent extraordinary market conditions, Nasdaq has determined to toll the compliance period for the Minimum Bid Price Requirement through June 30, 2020, or the Tolling Period. As a result, the compliance Period will end on December 28, 2020, or the Compliance Period, instead of October 20, 2020. If at any time during the Tolling Period or the Compliance Period the closing bid price of our common stock is at least $1.00 for a minimum of 10 consecutive business days, we will regain compliance with the Minimum Bid Price Requirement and our common stock will continue to be eligible for listing on The Nasdaq Capital Market absent noncompliance with any other requirement for continued listing.

If we do not regain compliance with the Minimum Bid Price Requirement by the end of the Compliance Period, we may be afforded an additional 180 calendar days to regain compliance with the Minimum Bid Price Requirement, or the Additional Compliance Period, if on the last day of the Compliance Period the Company is in compliance with the market value of publicly held shares requirement for continued listing as well as all other standards for initial listing of our common stock on The Nasdaq Capital Market (other than the Minimum Bid Price Requirement), unless we do not indicate our intent to cure the deficiency, or if it appears to Nasdaq that it is not possible for us to cure the deficiency.

If we do not regain compliance with the Minimum Bid Price Requirement by the end of the Compliance Period, or the Additional Compliance Period, if applicable, our common stock will be subject to delisting.

If Nasdaq staff provides notice that our common stock may become subject to delisting, Nasdaq rules permit us to appeal the decision to reject our proposed compliance plan or any delisting determination to a Nasdaq Hearings Panel. Accordingly, there can be no guarantee that we will be able to maintain our Nasdaq listing. If our common stock is delisted by Nasdaq, it could lead to a number of negative implications, including an adverse effect on the price of our common stock, increased volatility in our common stock, reduced liquidity in our common stock, the loss of federal preemption of state securities laws and greater difficulty in obtaining financing. In addition, delisting of our common stock could deter broker-dealers from making a market in or otherwise seeking or generating interest in our common stock, could result in a loss of current or future coverage by certain sell-side analysts and might deter certain institutions and persons from investing in our securities at all. Delisting could also cause a loss of confidence of our customers, collaborators, vendors, suppliers and employees, which could harm our business and future prospects.

If our common stock is delisted by Nasdaq, our common stock may be eligible to trade on the OTC Bulletin Board, OTC-QB or another over-the-counter market. Any such alternative would likely result in it being more difficult for us to raise additional capital through the public or private sale of equity securities and for investors to dispose of or obtain accurate quotations as to the market value of, our common stock. In addition, there can be no assurance that our common stock would be eligible for trading on any such alternative exchange or markets. Moreover, if our common stock is delisted, it may come within the definition of “penny stock” under the Exchange Act, which imposes additional sales practice requirements on broker-dealers who sell securities to persons other than established customers and accredited investors. For example, we and/or broker-dealers are required to make a special suitability determination for purchases of such securities and must receive a purchaser’s written consent to the transaction prior to any purchase. Additionally, unless exempt, prior to a transaction involving a penny stock, the penny stock rules require the delivery of a disclosure schedule prescribed by the SEC relating to the penny stock market. The broker-dealer must also disclose the commissions payable to the broker-dealer, current quotations for the securities and, if the broker-dealer is the sole market-maker for the security, the fact that they are the sole market-maker and their presumed control over the market. Finally, monthly statements disclosing recent price information on the limited market in penny stocks must be sent to holders of such penny stocks. These requirements may reduce trading activity in the secondary market for our common stock and may impact the ability or willingness of broker-dealers to sell our securities which could limit the ability of stockholders to sell their securities in the public market and limit our ability to attract and retain qualified employees or raise additional capital in the future.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States of America will be 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 other employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- 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 under the Delaware General Corporation Law, our amended and restated certificate of incorporation, or our amended and restated bylaws; and
- 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 amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. 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 amended and restated 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.

These exclusive forum provisions 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, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive-forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could adversely affect our results of operations and financial condition.

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

On April 8, 2020, in connection with that certain Second Amendment to Loan and Security Agreement, or the Second Amendment, dated March 6, 2020, by and among us, Innovatus Life Sciences Lending Fund I, LP and East West Bank, as more fully described in Note 5 to our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q, we issued an aggregate of 872,601 shares of our common stock, or the Amendment Shares, to satisfy a $200,000 waiver fee and a $100,000 prepayment fee due under the Second Amendment. The Amendment Shares were issued without registration under the Securities Act of 1933, as amended, in reliance on the exemption from registration under Section 4(a)(2).

The Amendment Shares were subsequently registered for resale on a registration statement on Form S-3 (333-239360), or the Registration Statement, filed with the Securities and Exchange Commission on June 22, 2020 and declared effective on July 7, 2020. We have not and will not receive any of the proceeds from the offering described in the Registration Statement.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

Exhibit Number	Description
3.1 (1)	Amended and Restated Certificate of Incorporation.
3.2 (1)	Amended and Restated Bylaws.
4.1 (2)	Form of Common Stock Certificate
4.2 (2)	Form of Warrant to Purchase Series B-1 Preferred Stock issued to Square 1 Bank.
4.3 (2)	Form of Warrant to Purchase Series D Preferred Stock issued to Western Alliance Bank.
4.4 (2)	Warrant to Purchase Series D-1 Preferred Stock issued to Western Alliance Bank.
4.5 (2)	Form of Warrant to Purchase Series D-1 Preferred Stock issued to Midcap Financial Trust.
4.6 (2)	Form of Warrant to Purchase Common Stock Issued to Underwriters.
4.7 (2)	Form of Warrant Certificate (included in Exhibit 4.8).
4.8 (2)	Form of Warrant Agent Agreement by and between the Registrant and American Stock Transfer & Trust Company LLC, as warrant agent.
4.9 (3)	Form of Warrant to Purchase Common Stock for Service Providers.
4.10 (4)	Form of Warrant to Purchase Common Stock for Innovatus.
4.11 (4)	Registration Rights Agreement, dated March 14, 2019, between the Company and Aspire Capital Fund, LLC.
4.12 (4)	Registration Rights Agreement, dated March 14, 2019, by and among the Company and the Innovatus Investors.
4.13 (5)	Form of Warrant to Purchase Common Stock issued to Investors in October 2019 Public Offering.
4.14 (5)	Form of Pre-Funded Warrant issued to Investors in October 2019 Public Offering.
4.15 (6)	Form of Warrants Amendment and Agreement.
4.16 (6)	Form of New Warrant issued in April 2020.
4.17 (7)	Form of Warrant to Purchase Common Stock issued to Investors in April 2020 Public Offering.
4.18 (7)	Form of Prefunded Warrant issued to Investors in April 2020 Public Offering.
4.19	Description of the Company's Securities
31.1*	Certification of Principal Executive Officer and Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as amended.
32.1*	Certification of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

(1) Incorporated by reference to the Registrant’s Current Report on Form 8-K, filed with the SEC on August 24, 2018.
(2) Incorporated by reference to the Registrant’s Registration Statement on Form S-1 (File No. 333-225970), as amended.
(3) Incorporated by reference to the Registrant’s Current Report on Form 8-K, filed with the SEC on November 21, 2018.
(4) Incorporated by reference to the Registrant’s Current Report on Form 8-K, filed with the SEC on March 14, 2019.
(5) Incorporated by reference to the Registrant’s Registration Statement on Form S-1 (File No. 333-233828), as amended.
(6) Incorporated by reference to the Company’s Current Report on Form 8-K, filed with the SEC on March 2, 2020.
(7) Incorporated by reference to the Registrant’s Registration Statement on Form S-1 (File No. 333-237074), as amended.

* This certification is deemed not filed for purpose of section 18 of the Exchange Act or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

SIGNATURES

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

	BIONANO GENOMICS, INC.
Date: August 13, 2020	By: /s/ R. Erik Holmlin, Ph.D.
	R. Erik Holmlin, Ph.D.
	President and Chief Executive Officer *(Principal Executive and Financial Officer)*

DESCRIPTION OF SECURITIES

General

The following summary describes our securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), certain provisions of our certificate of incorporation and bylaws, and certain provisions of Delaware law. Because it is only a summary, it does not contain all of the information that may be important to you. For a complete description of the matters set forth in this Description of Securities, you should refer to our amended and restated certificate of incorporation ("Restated Certificate"), amended and restated bylaws ("Bylaws"), form of warrant certificate and form of warrant agent agreement, each of which are filed as exhibits to this Annual Report on Form 10-K for the year ended December 31, 2019, as well as the relevant provisions of the Delaware General Corporation Law ("DGCL"). The Restated Certificate authorizes us to issue 200,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share. Our board of directors has the authority, without stockholder approval, except as required by the listing standards of The Nasdaq Stock Market LLC, to issue additional shares of our capital stock. In addition, our board of directors has the authority, without further action by our stockholders, to designate the rights, preferences, privileges, qualifications and restrictions of our preferred stock in one or more series.

Common Stock

Voting Rights

Our common stock is entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and does not have cumulative voting rights. The Restated Certificate establishes a classified board of directors that is divided into three classes with staggered three-year terms. Only the directors in one class will be subject to election by a plurality of the votes cast at each annual meeting of our stockholders, with the directors in the other classes continuing for the remainder of their respective three-year terms.

Economic Rights

Except as otherwise expressly provided in the Restated Certificate or required by applicable law, all shares of common stock have the same rights and privileges and rank equally, share ratably, and are identical in all respects for all matters, including those described below.

Dividends. Subject to preferences that may be applicable to any then-outstanding preferred stock, the holders of common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation Rights. In the event of our liquidation, dissolution or winding-up, holders of our common stock are entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

No Preemptive or Similar Rights

The holders of our shares of common stock are not entitled to preemptive rights, and are not subject to conversion, redemption or sinking fund provisions. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Fully Paid and Non-Assessable

All of our outstanding shares of common stock are fully paid and nonassessable.

Warrants

Each warrant issued in our initial public offering entitles the holder to purchase one share of our common stock at an initial exercise price of $6.125, subject to adjustment. Each warrant became exercisable 30 days after our initial public offering and will expire at 5:00 p.m. New York City time on August 21, 2023. The warrants were issued in registered form, in each case pursuant to a warrant agreement between American Stock Transfer & Trust Company, LLC, as warrant agent, and us.

The exercise price and number of shares issuable upon exercise of the warrants may be adjusted upon the occurrence of certain events, including but not limited to any stock split, stock dividend, extraordinary dividend, recapitalization, reorganization, merger or consolidation. However, the warrants will not be adjusted for issuances of common stock or securities convertible or exercisable into common stock at a price below the then current exercise price of such warrant.

If, at any time warrants are outstanding, we consummate any fundamental transaction, as described in such warrants and generally including any consolidation or merger with or into another corporation, the consummation of a transaction whereby another entity acquires more than 50% of our outstanding common stock, or the sale or other disposition of all or substantially all of our assets, or other transaction in which our common stock are converted into or exchanged for other securities or other consideration, the holder of any such warrants will thereafter receive upon exercise of such warrants, the securities or other consideration to which a holder of the number of common stock then deliverable upon the exercise or conversion of such warrants would have been entitled upon such consolidation or merger or other transaction.

The number of shares of our common stock that may be acquired by any holder upon any exercise of the warrants will be limited to the extent necessary to insure that, following such exercise (or other issuance), the total number of common stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder’s for purposes of Section 13(d) of the Exchange Act, does not exceed 9.99% (or in certain instances 4.99%) of the total number of issued and outstanding shares of our common stock (including for such purpose the common stock issuable upon such exercise), which we refer to as the beneficial ownership limitation; provided, however, that if a holder and/or its affiliates already own 9.99% (or 4.99%, as applicable) on the date of this offering then the beneficial ownership limitation will not apply to such holder. A holder may elect to increase or decrease this beneficial ownership limitation from 9.99% (or 4.99%, as applicable) to any other percentage of the total number of issued and outstanding shares of our common stock (including for such purpose the common stock issuable upon such exercise) upon providing us with not less than 61 days’ prior written notice, and any such increase will apply only to such holder.

The warrants may be exercised, at the option of each holder, in whole or in part, upon surrender of the warrant certificate on or prior to the expiration date at the offices of the warrant agent, with the exercise form on the reverse side of the warrant certificate completed and executed as indicated, accompanied by full payment of the exercise price for the number of common stock purchased upon such exercise, by certified check payable to us or by wire transfer of immediately available funds to an account designated by us. Subject to applicable laws, the warrants may be transferred at the option of the holders upon surrender of the warrants to us together with the appropriate instruments of transfer.

The warrant holders do not have the rights or privileges of holders of our common stock or any voting rights until they exercise their warrants and receive common stock. After the issuance of common stock upon exercise of such warrants, each holder will be entitled to one vote for each common stock held of record on all matters to be voted on by stockholders. If we fail to issue a holder of our warrants, within three business days after receipt of an applicable exercise notice, a certificate for the number of shares of our common stock to which such holder is entitled, then such holder can rescind the exercise of such warrant. If we are otherwise unable to issue and deliver the number of shares of our common stock that a holder is entitled to under the warrant, we have no obligation to pay such holder any cash or other consideration to settle such warrant.

Under the terms of the warrant agreement, we have agreed to use our reasonable best efforts to maintain the effectiveness of the registration statement and current prospectus relating to common stock issuable upon exercise of the warrants at any time that the warrants are exercisable. During any period that we fail to have maintained an effective registration statement covering the common stock underlying such warrants, the holder may exercise such warrants on a cashless basis.

Anti-Takeover Provisions

The provisions of the DGCL, the Restated Certificate and the Bylaws, certain provisions of which are summarized below, may have the effect of delaying, deferring or discouraging another person from acquiring control of our company. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Delaware Anti-Takeover Law

We are subject to Section 203 of the DGCL, which generally prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- the interested stockholder owned at least 85% of the voting stock of the corporation outstanding upon consummation of the transaction, excluding for purposes of determining the number of shares outstanding (a) shares owned by persons who are directors and also officers and (b) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the consummation of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 of the DGCL defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 of the DGCL defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Certificate of Incorporation and Bylaws

Because our stockholders do not have cumulative voting rights, stockholders holding a majority of the voting power of our shares of common stock may be able to elect all of our directors. The Restated Certificate and the Restated Bylaws provide for stockholder actions at a duly called meeting of stockholders or, before the date on which all shares of common stock convert into a single class, by written consent. A special meeting of stockholders may be called by a majority of our board of directors, the chair of our board of directors, or our chief executive officer. The

Bylaws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors. Our board of directors is divided into three classes with staggered three-year terms.

The foregoing provisions make it difficult for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of deterring hostile takeovers or delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts.

Choice of Forum

The Restated Certificate provides that the Court of Chancery of the State of Delaware is the exclusive forum for: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a breach of fiduciary duty; (iii) any action asserting a claim against us or any of our directors or officers or other employees arising under the Delaware General Corporation Law, the Restated Certificate or the Bylaws; or (iv) any action asserting a claim against us that is governed by the internal affairs doctrine. The Restated Certificate further provides that U.S. federal district courts will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. These choice of forum provisions of the Restated Certificate will not apply to suits brought to enforce a duty or liability created by the Exchange Act.

Exhibit 31.1

CERTIFICATION

I, R. Erik Holmlin, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Bionano Genomics, Inc., a Delaware corporation (the "registrant");
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. I am responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

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

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

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. I have disclosed, based on my 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 13, 2020

/s/ R. Erik Holmlin, Ph.D.

R. Erik Holmlin, Ph.D.
President and Chief Executive Officer
(Principal Executive Officer and Principal Financial Officer)

Exhibit 32.1

CERTIFICATION

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the "Exchange Act") and 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, R. Erik Holmlin, Chief Executive Officer of Bionano Genomics, Inc., a Delaware corporation (the "Company"), hereby certifies that, to the best of his knowledge:

1. The Company's Quarterly Report on Form 10-Q for the period ended June 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Periodic Report"), and to which this Certification is attached as Exhibit 32.1, fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

Dated: August 13, 2020

/s/ R. Erik Holmlin, Ph.D.

R. Erik Holmlin, Ph.D.

President and Chief Executive Officer

(Principal Executive Officer and Principal Financial Officer)

This certification accompanies and is being "furnished" with the Periodic Report, shall not be deemed "filed" by the Company for purposes of Section 18 of the Exchange Act, or otherwise subject to liability under that Section and shall not be deemed to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date of the Periodic Report, irrespective of any general incorporation language contained in such filing.