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

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2019

or

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

For the transition period from to

Commission file number: 001-34180

FLUIDIGM CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**77-0513190**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
7000 Shoreline Ct, Ste 100, South San Francisco, CA	**94080**
(Address of principal executive offices)	**(Zip Code)**

(650) 266-6000
(Registrant's telephone number, including area code)

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, par value $0.001 per share	**FLDM**	**Nasdaq Global Select Market**

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

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

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

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

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

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

As of April 30, 2019, there were 69,019,934 shares of the Registrant's common stock, $0.001 par value per share, outstanding.

FLUIDIGM CORPORATION

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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

FLUIDIGM CORPORATION
CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)
(Unaudited)

	March 31, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 65,634	$ 95,401
Short-term investments	9,499	—
Accounts receivable (net of allowances of $126 at March 31, 2019 and $126 at December 31, 2018)	19,309	16,651
Inventories	13,754	13,003
Prepaid expenses and other current assets	3,282	2,051
Total current assets	111,478	127,106
Property and equipment, net	8,234	8,825
Operating lease right-of-use asset, net	7,177	—
Other non-current assets	5,850	6,208
Developed technology, net	54,600	57,400
Goodwill	104,108	104,108
Total assets	$ 291,447	$ 303,647
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 6,936	$ 4,027
Accrued compensation and related benefits	6,222	14,470
Operating lease liabilities, current	3,701	—
Other accrued liabilities	4,998	7,621
Deferred revenue, current	12,325	11,464
Total current liabilities	34,182	37,582
Convertible notes, net	49,780	172,058
Deferred tax liability, net	13,353	13,714
Operating lease liabilities, non-current	5,205	—
Deferred revenue, non-current	6,118	6,327
Other non-current liabilities	564	1,850
Total liabilities	109,202	231,531
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.001 par value, 10,000 shares authorized, no shares issued and outstanding at March 31, 2019 and December 31, 2018	—	—
Common stock, $0.001 par value, 200,000 shares authorized at March 31, 2019 and December 31, 2018; 68,991 and 49,338 shares issued and outstanding as of March 31, 2019 and December 31, 2018, respectively	69	49
Additional paid-in capital	767,169	631,605
Accumulated other comprehensive loss	(677)	(687)
Accumulated deficit	(584,316)	(558,851)
Total stockholders' equity	182,245	72,116
Total liabilities and stockholders' equity	$ 291,447	$ 303,647

See accompanying notes

FLUIDIGM CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)
(Unaudited)

	Three Months Ended March 31,	
	2019	**2018**
Revenue:		
Product revenue	$ 24,827	$ 20,477
Service revenue	5,284	4,771
Total revenue	30,111	25,248
Cost of revenue:		
Cost of product revenue	11,389	10,222
Cost of service revenue	1,732	1,598
Cost of revenue	13,121	11,820
Gross profit	16,990	13,428
Operating expenses:		
Research and development	8,372	7,256
Selling, general and administrative	22,824	18,805
Total operating expenses	31,196	26,061
Loss from operations	(14,206)	(12,633)
Interest expense	(2,701)	(1,889)
Loss on extinguishment of debt	(9,000)	—
Other income, net	484	92
Loss before income taxes	(25,423)	(14,430)
Income tax benefit (expense)	(42)	1,183
Net loss	$ (25,465)	$ (13,247)
Net loss per share, basic and diluted	$ (0.44)	$ (0.34)
Shares used in computing net loss per share, basic and diluted	58,411	38,856

See accompanying notes

FLUIDIGM CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)
(Unaudited)

	Three Months Ended March 31,	
	2019	**2018**
Net loss	$ (25,465)	$ (13,247)
Other comprehensive income, net of tax:		
Foreign currency translation adjustment	8	43
Net change in unrealized gain (loss) on investments	2	(1)
Other comprehensive income, net of tax	10	42
Comprehensive loss	$ (25,455)	$ (13,205)

See accompanying notes

FLUIDIGM CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)
(Unaudited)

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive (Loss)/Income	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2018	49,338	$ 49	$ 631,605	$ (687)	$ (558,851)	$ 72,116
Issuance of common stock on bond conversion	19,460	19	133,279	—	—	133,298
Issuance of restricted stock, net of shares withheld for taxes, and other	140	1	(177)	—	—	(176)
Issuance of common stock from option exercises	53		255	—	—	255
Stock-based compensation expense	—	—	2,207	—	—	2,207
Net loss	—	—	—	—	(25,465)	(25,465)
Other comprehensive loss	—	—	—	10	—	10
Balance at March 31, 2019	68,991	$ 69	$ 767,169	$ (677)	$ (584,316)	$ 182,245

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive (Loss)/Income	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2017	38,787	$ 39	$ 531,666	$ (574)	$ (500,196)	$ 30,935
Issuance of restricted stock, net of shares withheld for taxes, and other	105	—	(69)	—	—	(69)
Issuance of common stock from option exercises	16	—	72	—	—	72
Conversion option on convertible debt	—	—	29,292	—	—	29,292
Closing cost related to conversion option	—	—	(556)	—		(556)
Cumulative-effect of new accounting standard for Topic 606 Revenue	—	—	—	—	358	358
Stock-based compensation expense	—	—	1,747	—	—	1,747
Net loss	—	—	—	—	(13,247)	(13,247)
Other comprehensive loss	—	—	—	42	—	42
Balance at March 31, 2018	38,908	$ 39	$ 562,152	$ (532)	$ (513,085)	$ 48,574

See accompanying notes

FLUIDIGM CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Three Months Ended March 31,	
	2019	**2018**
Operating activities		
Net loss	$ (25,465)	$ (13,247)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,191	1,983
Stock-based compensation expense	2,271	1,747
Amortization of developed technology	2,800	2,800
Amortization of debt discounts, premium and issuance costs	2,037	505
Loss on extinguishment of debt	9,000	—
Loss on disposal of property and equipment	70	—
Other non-cash items	(25)	(563)
Changes in assets and liabilities:		
Accounts receivable, net	(2,483)	(1,278)
Inventories	(739)	(539)
Prepaid expenses and other current assets	(1,334)	(552)
Other non-current assets	100	83
Accounts payable	2,649	970
Deferred revenue	650	720
Other current liabilities	(9,206)	(4,017)
Other non-current liabilities	(1,646)	(4,788)
Net cash used in operating activities	(20,130)	(16,176)
Investing activities		
Purchases of investments	(9,491)	(186)
Purchases of property and equipment	(266)	(77)
Net cash used in investing activities	(9,757)	(263)
Financing activities		
Payment of debt issuance costs	—	(82)
Proceeds from exercise of stock options	255	71
Payments for taxes related to net share settlement of equity awards	(108)	(47)
Net cash provided by (used in) financing activities	147	(58)
Effect of foreign exchange rate fluctuations on cash and cash equivalents	(27)	413
Net decrease in cash and cash equivalents	(29,767)	(16,084)
Cash and cash equivalents at beginning of period	95,401	58,056
Cash and cash equivalents at end of period	$ 65,634	$ 41,972

See accompanying notes

FLUIDIGM CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Description of Business

Fluidigm Corporation (we, our, or us) was incorporated in the State of California in May 1999 to commercialize microfluidic technology initially developed at the California Institute of Technology. In July 2007, we were reincorporated in Delaware. Our headquarters are located in South San Francisco, California.

We create, manufacture, and market innovative technologies and life science tools, including preparatory and analytical instruments for Mass Cytometry, PCR, Library Prep, Single Cell Genomics, and consumables, including IFCs, assays, and reagents. Our focus is on the most pressing needs in translational and clinical research, including cancer, immunology and immunotherapy. We use proprietary CyTOF® and microfluidics technologies to develop innovative end-to-end solutions that have the flexibility required to meet the needs of translational research and the robustness to support high-impact clinical research studies. We sell our instruments to leading academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, and biopharmaceutical, biotechnology and plant and animal research companies.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles (U.S. GAAP) and include the accounts of our wholly owned subsidiaries. As of December 31, 2018, we had wholly owned subsidiaries in Singapore, Canada, the Netherlands, Japan, France, the United Kingdom, China, and Germany. All subsidiaries, except for Singapore, use their local currency as their functional currency. The Singapore subsidiary uses the U.S. dollar as its functional currency. All intercompany transactions and balances have been eliminated in consolidation.

Certain prior period amounts in the condensed consolidated statements of cash flows were reclassified to conform with the current period presentation. These reclassifications were immaterial and did not affect prior period total assets, total liabilities, stockholders' equity, total revenue, total costs and expenses, loss from operations or net loss.

Net Loss per Share

Our basic and diluted net loss per share is calculated by dividing net loss by the weighted-average number of shares of common stock outstanding for the period. Restricted stock units, options to purchase common stock, and shares associated with the potential conversion of our convertible notes are considered to be potentially dilutive common shares but have been excluded from the calculation of diluted net loss per share as their effect is anti-dilutive for all periods presented.

The following potentially dilutive common shares were excluded from the computation of diluted net loss per share for the three months ended March 31, 2019, and 2018 because including them would have been anti-dilutive (in thousands):

	Three Months Ended March 31,	
	2019	2018
Stock options, restricted stock units and performance awards	4,881	3,254
2018 Convertible Notes	—	19,036
2018 Convertible Notes potential make-whole shares at March 31, 2018	—	1,204
2014 Convertible Notes	916	1,364
Total	5,797	24,858

Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss, net of tax, for the three months ended March 31, 2019, are as follows (in thousands):

	Foreign Currency Translation Adjustment	Net Unrealized Gain on Securities	Accumulated Other Comprehensive Loss
Balance at December 31, 2018	$ (687)	$ —	$ (687)
Other comprehensive income	8	2	10
Balance at March 31, 2019	$ (679)	$ 2	$ (677)

Revenue Recognition

We generate revenue primarily from the sale of our products and services. Product revenue is derived from the sale of instruments and consumables, including IFCs, assays and reagents. Service revenue is derived from the sale of instrument service contracts, repairs, installation, training and other specialized product support services. Revenue is reported net of any sales, use and value-added taxes we collect from customers as required by government authorities.

We recognize revenue based on the amount of consideration we expect to receive in exchange for the goods and services we transfer to the customer. Our commercial arrangements typically include multiple distinct products and services, and we allocate revenue to these performance obligations based on their relative standalone selling prices. Standalone selling prices (SSP) are generally determined using observable data from recent transactions. In cases where sufficient data is not available, we estimate a product's SSP using a cost plus a margin approach or by applying a discount to the product's list price.

Product Revenue

We recognize product revenue at the point in time when control of the goods passes to the customer and we have an enforceable right to payment. This generally occurs either when the product is shipped from one of our facilities or when it arrives at the customer's facility, based on the contractual terms. Customers generally do not have a unilateral right to return products after delivery. Invoices are generally issued at shipment and generally become due in 30 to 60 days.

We sometimes perform shipping and handling activities after control of the product passes to the customer. We have made an accounting policy election to account for these activities as product fulfillment activities rather than as separate performance obligations.

Service Revenue

We recognize revenue from repairs, installation, training and other specialized product support services at the point in time the work is completed. Installation and training services are generally billed in advance of service. Repairs and other services are generally billed at the point the work is completed.

Revenue associated with instrument service contracts is recognized on a straight-line basis over the life of the agreement, which is generally one to three years. We believe this time-elapsed approach is appropriate for service contracts because we provide services on demand throughout the term of the agreement. Invoices are generally issued in advance of service on a monthly, quarterly, annual or multi-year basis. Payments made in advance of service are reported on our consolidated balance sheet as deferred revenue.

Contract Costs

Incremental sales commission costs incurred to obtain instrument service contracts are capitalized and amortized to selling, general and administrative expense over the life of the contract, which is generally one to three years. As a practical expedient, we expense sales commissions associated with product support services that are delivered in less than one year as they are incurred. Sales commissions associated with the sale of products are expensed as they are incurred.

Product Warranties

We generally provide a one-year warranty on our instruments. We accrue for estimated warranty obligations at the time of product shipment. We periodically review our warranty liability and record adjustments based on the terms of warranties provided to customers, and historical and anticipated warranty claim experience. This expense is recorded as a component of cost of product revenue in the condensed consolidated statements of operations.

Significant Judgments

Applying the revenue recognition practices discussed above often requires significant judgment. Judgment is required when identifying performance obligations, estimating SSP and allocating purchasing consideration in multi-element arrangements and estimating the future amount of our warranty obligations. Moreover, significant judgment is required when interpreting commercial terms and determining when control of goods and services passes to the customer. Any material changes created by errors in judgment could have a material effect on our operating results and overall financial condition.

Goodwill, Intangible Assets, and Other Long-lived Assets

Goodwill, which has an indefinite useful life, represents the excess of cost over fair value of net assets acquired. Our intangible assets include developed technology, patents and licenses. The cost of identifiable intangible assets with finite lives is generally amortized on a straight-line basis over the assets' respective estimated useful lives.

Goodwill and intangible assets with indefinite lives are not subject to amortization but are tested for impairment on an annual basis during the fourth quarter or whenever events or changes in circumstances indicate the carrying amount of these assets may not be recoverable. We first conduct an assessment of qualitative factors to determine whether it is more likely than not that the fair value of our reporting unit is less than its carrying amount. If we determine that it is more likely than not that the fair value of our reporting unit is less than its carrying amount, we then conduct a two-step test for impairment of goodwill. In the first step, we compare the fair value of our reporting unit to its carrying value. If the fair value of our reporting unit exceeds its carrying value, goodwill is not considered impaired and no further analysis is required. If the carrying value of the reporting unit exceeds its fair value, then the second step of the impairment test must be performed in order to determine the implied fair value of the goodwill. If the carrying value of the goodwill exceeds its implied fair value, then an impairment loss equal to the difference would be recorded.

We evaluate our long-lived assets, including finite-lived intangibles, for indicators of possible impairment when events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. If any indicator of impairment exists, we assess the recoverability of the affected long-lived assets by determining whether the carrying value of the asset can be recovered through undiscounted future operating cash flows. If impairment is indicated, we estimate the asset's fair value using future discounted cash flows associated with the use of the asset and adjust the carrying value of the asset accordingly. We did not recognize any impairment of long-lived assets for any of the periods presented herein.

Convertible Notes

In February 2014, we closed an underwritten public offering of $201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (2014 Notes). In March 2018, we entered into separate privately negotiated transactions with certain holders of our 2014 Notes to exchange $150.0 million in aggregate principal amount of the 2014 Notes for our new 2.75% Exchange Convertible Senior Notes due 2034 (2018 Notes). Following the exchange, approximately $51.3 million in aggregate principal amount of the 2014 Notes were outstanding in addition to $150.0 million in aggregate principal amount of the 2018 Notes. In the first quarter of 2019, the 2018 Notes were converted into 19.5 million shares of common stock and the 2018 Notes were retired.

See Note 6 Convertible Notes and Credit Facility for the accounting treatment of the transactions and additional information about the exchange.

Recent Accounting Changes and Accounting Pronouncements

Adoption of New Accounting Guidance

In February 2016, the FASB established Topic 842, Leases, by issuing Accounting Standards Update (ASU) No. 2016-02, which requires lessees to recognize operating leases on the balance sheet and disclose key information about leasing arrangements. Topic 842 was subsequently amended by ASU No. 2018-01, Land Easement Practical Expedient for Transition to Topic 842; ASU No. 2018-10, Codification Improvements to Topic 842, Leases; and ASU No. 2018-11, Targeted Improvements. The new standard establishes a right-of-use (ROU) model that requires a lessee to recognize a ROU asset and lease liability on the balance sheet for all leases with a term longer than 12 months. Leases are classified as finance or operating; the classification will impact the expense recognition in the income statement.

Modified Retrospective Transition approach is required, applying the new standard to all leases existing at the date of initial application. An entity may choose to use either (1) its effective date or (2) the beginning of the earliest comparative period presented in the financial statements as its date of initial application. We adopted the new standard on January 1, 2019 and used the effective date of the standard as our date of initial application. Consequently, previously presented financial information will not be updated, and the disclosures required under the new standard will not be provided for dates and periods before January 1, 2019. For dates and periods prior to January 1, 2019, the original disclosures under ASC 840 will be disclosed.

The new standard provides several optional practical expedients in transition. We elected the ‘package of practical expedients,’ which permits us to not reassess under the new standard our prior conclusions about lease identification, lease classification and initial direct costs. We did not elect the use-of-hindsight or the practical expedient pertaining to land easements; the latter not being applicable to us.

On adoption, we recognized $9.2 million of lease liabilities, based on the present value of the current minimum lease payments over the lease term, discounted using our collateralized incremental borrowing rate, with corresponding ROU assets of $7.4 million. The difference between the initial lease liability and ROU asset is attributable to deferred rent. We did not have any impact to retained earnings from the adoption of ASC 842.

The new standard also provides certain accounting elections for an entity’s ongoing accounting. We have elected the short-term lease recognition exemption for all leases that qualify. This means, for those leases that qualify, we will not recognize ROU assets or lease liabilities for leases with an initial lease term of one year or less. We have also elected to not separate lease and nonlease components for our building leases. The nonlease components are generally variable in nature and are expected to comprise the majority of our variable lease costs. Variable costs are expensed as incurred. We have taken a portfolio approach for our vehicle leases by country.

Recent Accounting Pronouncements

In August 2018, the FASB issued ASU 2018-15 Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40) which establishes new guidance on the accounting for costs incurred to implement a cloud computing arrangement that is considered a service arrangement. The new guidance requires the capitalization of such costs, aligning it with the accounting for costs associated with developing or obtaining internal-use software. The new guidance is effective for fiscal years beginning after December 15, 2019. We are currently evaluating the impact of adoption on our consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment. The ASU eliminates the requirement for an entity to calculate the implied fair value of goodwill to measure a goodwill impairment charge. Instead, an entity performs its annual, or interim, goodwill impairment testing by comparing the fair value of a reporting unit with its carrying amount and recording an impairment charge for the amount by which the carrying amount exceeds the fair value. The ASU will be effective for annual and interim goodwill impairment testing performed for our fiscal year beginning January 1, 2020, with early adoption permitted. We are currently evaluating the effect that the updated standard will have on our consolidated financial statements.

3. Revenue

Disaggregation of Revenues

The following table disaggregates our revenue for the three months ended March 31, 2019, and 2018, respectively, by geographic area and by products and services (in thousands):

	Three Months Ended March 31,	
	2019	2018
Geographic Markets:		
Americas	$ 12,971	$ 10,834
Europe	8,156	8,473
Asia Pacific	8,984	5,941
Total revenue	$ 30,111	$ 25,248
Products and Services:		
Instruments	$ 12,840	$ 7,520
Consumables	11,987	12,957
Product revenue	24,827	20,477
Services	5,284	4,771
Total revenue	$ 30,111	$ 25,248

Performance Obligations

We reported $17.8 million of deferred revenue on our December 31, 2018 consolidated balance sheet. During the three months ended March 31, 2019, $3.6 million of the opening balance was recognized as revenue and $4.2 million of net additional advance payments were received from customers, primarily associated with instrument service contracts. At March 31, 2019, we reported $18.4 million of deferred revenue.

The following table summarizes the expected timing of revenue recognition for unfulfilled performance obligations associated with instrument service contracts that were partially completed at March 31, 2019 (in thousands):

	Expected Revenue [1]
2019 (remainder of the year)	$ 9,002
2020	5,702
2021	2,957
Thereafter	2,070
	$ 19,731

[1] Expected revenue includes both billed amounts included in deferred revenue and unbilled amounts that are not reflected in our consolidated financial statements and are subject to change if our customers decide to cancel or modify their contracts. Purchase orders for instrument service contracts can generally be canceled before the service period begins without penalty.

We apply the practical expedient that permits us to not disclose information about unsatisfied performance obligations that are expected to be delivered within one year.

Contract Costs

We reported $0.4 million of capitalized commission costs from instrument service contracts from instrument service contracts at March 31, 2019 and December 31, 2018 in the condensed consolidated balance sheets.

4. Goodwill and Intangible Assets, net

In connection with our acquisition of DVS in February 2014, we recognized goodwill of $104.1 million. Intangible assets include developed technology related to the DVS acquisition and other intangible assets included in Other non-current assets.

Intangible assets, net, were as follows (in thousands):

	March 31, 2019			
	Gross Amount	Accumulated Amortization	Net	Weighted-Average Amortization Period
Developed technology	$ 112,000	$ (57,400)	$ 54,600	10.0 years
Patents and licenses	$ 11,274	$ (7,119)	$ 4,155	7.8 years

	December 31, 2018			
	Gross Amount	Accumulated Amortization	Net	Weighted-Average Amortization Period
Developed technology	$ 112,000	$ (54,600)	$ 57,400	10.0 years
Patents and licenses	$ 11,274	$ (6,861)	$ 4,413	7.8 years

Amortization of intangibles was $3.1 million for both the three months ended March 31, 2019, and 2018, respectively.

Based on the carrying value of intangible assets, net, as of March 31, 2019, the annual amortization expense is expected to be as follows (in thousands):

Fiscal Year	Developed Technology Amortization Expense	Patents and Licenses Amortization Expense	Total
2019 (remainder of the year)	$ 8,400	$ 781	$ 9,181
2020	11,200	1,042	12,242
2021	11,200	887	12,087
2022	11,200	804	12,004
2023	11,200	634	11,834
Thereafter	1,400	7	1,407
Total	$ 54,600	$ 4,155	$ 58,755

5. Balance Sheet Details

Inventories

Inventories consisted of the following (in thousands):

	March 31, 2019	December 31, 2018
Raw materials	$ 7,096	$ 5,996
Work-in-process	612	650
Finished goods	6,046	6,357
Total inventories, net	$ 13,754	$ 13,003

Property and Equipment, net

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

	March 31, 2019	December 31, 2018
Computer equipment and software	$ 4,316	$ 4,201
Laboratory and manufacturing equipment	19,071	18,780
Leasehold improvements	7,042	7,173
Office furniture and fixtures	1,686	1,506
Property and equipment, gross	32,115	31,660
Less accumulated depreciation and amortization	(23,901)	(22,855)
Construction-in-progress	20	20
Property and equipment, net	$ 8,234	$ 8,825

Warranty

We accrue for estimated warranty obligations once revenue is recognized. Management periodically reviews the estimated fair value of its warranty liability and records adjustments based on the terms of warranties provided to customers, as well as historical and anticipated warranty claim experience. Activity for our warranty accrual for the three months ended March 31, 2019, and 2018, which is included in other accrued liabilities, is summarized below (in thousands):

	Three Months Ended March 31,	
	2019	2018
Beginning balance	$ 863	$ 699
Accrual for current period warranties	286	337
Warranty costs incurred	(219)	(445)
Ending balance	$ 930	$ 591

6. Convertible Notes and Credit Facility

2014 Senior Convertible Notes (2014 Notes)

In February 2014, we closed an underwritten public offering of $201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (2014 Notes), pursuant to an underwriting agreement dated January 29, 2014. The 2014 Notes accrue interest at a rate of 2.75% per year, payable semi-annually in arrears on February 1 and August 1 of each year. Interest on the 2014 Notes accrued from February 4, 2014. The 2014 Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the 2014 Notes.

The initial conversion rate of the 2014 Notes is 17.8750 shares of our common stock, par value $0.001 per share, per $1,000 principal amount of 2014 Notes (which is equivalent to an initial conversion price of approximately $55.94 per share). The conversion rate will be subject to adjustment upon the occurrence of certain specified events, including upon a conversion in connection with a fundamental change, as defined in the indenture governing the 2014 Notes or, subject to certain conditions, redemption of the 2014 Notes by the Company.

Holders may surrender their 2014 Notes for conversion at any time prior to the stated maturity date. On or after February 6, 2018, and prior to February 6, 2021, we may redeem any or all of the 2014 Notes in cash if the closing price of our common stock exceeds 130% of the conversion price for a specified number of days, and on or after February 6, 2021, we may redeem any or all of the 2014 Notes in cash without any such condition. The redemption price of the 2014 Notes will equal 100% of the principal amount of the 2014 Notes plus accrued and unpaid interest. Holders may require us to repurchase all or a portion of their 2014 Notes on each of February 6, 2021, February 6, 2024, and February 6, 2029, at a repurchase price in cash equal to 100% of the principal amount of the 2014 Notes plus accrued and unpaid interest. If we undergo a fundamental change, as defined in the indenture governing the 2014 Notes, holders may require us to repurchase the 2014 Notes in whole or in part for cash at a repurchase price equal to 100% of the principal amount of the 2014 Notes plus accrued and unpaid interest.

In February 2014, we received $195.2 million, net of underwriting discounts, from the issuance of the 2014 Notes and incurred approximately $1.1 million in offering-related expenses. The underwriting discount of $6.0 million and the debt issuance costs of $1.1 million were recorded as offsets to the proceeds.

2018 Senior Convertible Notes (2018 Notes)

In March 2018, we entered into separate privately negotiated transactions with certain holders of our 2014 Notes to exchange $150.0 million in aggregate principal amount of the 2014 Notes for new convertible notes (2018 Notes). The 2018 Notes were subsequently retired in the first quarter of 2019 as discussed below.

As of the closing of the 2018 Notes on March 12, 2018, the estimated fair value was $145.5 million. The difference between the $150.0 million aggregate principal amount of the 2018 Notes and its fair value is amortized over the expected term of the 2018 Notes using the effective interest method through the first note holder put date of February 6, 2023.

We accounted for the exchange transaction as an extinguishment of debt due to the significance of the change in value of the embedded conversion option, resulting in a $0.1 million gain. The gain on extinguishment of the 2014 Notes exchanged was calculated as the difference between the reacquisition price (i.e., the fair value of the principal amount of 2018 Notes) and the net carrying value of the 2014 Notes exchanged, net of unamortized debt discount and debt issuance cost write-offs.

The 2018 Notes accrued interest at a rate of 2.75%, payable semi-annually in arrears on February 1 and August 1 of each year. Interest on the 2018 Notes accrued from February 1, 2018. The 2018 Notes were set to mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the indenture governing the 2018 Notes. The initial conversion rate of the 2018 Notes was 126.9438 shares of our common stock, par value $0.001 per share, per $1,000 principal amount of the 2018 Notes (which is equivalent to an initial conversion price of approximately $7.88 per share). The conversion rate was subject to adjustment upon the occurrence of certain specified events. One of those specified events was that Holders who converted their 2018 Notes voluntarily prior to our exercise of the Issuer's Conversion Option were entitled, under certain circumstances, to a make-whole premium in the form of an increase in the conversion rate determined by reference to a make-whole table set forth in the indenture governing the 2018 Notes. Any time prior to the maturity of the 2018 Notes, we had the ability to convert the 2018 Notes, in whole but not in part, into cash, shares of our common stock, or combination thereof, if the closing price of our common stock equaled or exceeded 110% of the conversion price then in effect for a specified number of days (Issuer’s Conversion Option). On or after February 6, 2022, we would have been able to elect to redeem all or any portion of the 2018 Notes at a redemption price equal to 100% of the accreted principal amount of the 2018 Notes on the redemption date of the 2018 Notes, plus accrued and unpaid interest.

Holders of the 2018 Notes had the right, at their option, to require us to purchase all or a portion of the 2018 Notes (i) on February 6, 2023, February 6, 2026, and February 6, 2029, or (ii) in the event of a fundamental change, as defined in the indenture governing the 2018 Notes, in each case, at a repurchase price equal to 100% of the accreted principal amount (i.e., up to 120% of the outstanding principal amount) of the 2018 Notes on the fundamental change repurchase date, plus accrued and unpaid interest.

As the 2018 Notes were convertible, at our election, into cash, shares of our common stock, or a combination of cash and shares of our common stock, we accounted for the 2018 Notes under the cash conversion guidance in ASC 470, whereby the embedded conversion option in the 2018 Notes was separated and accounted for in equity. The embedded conversion option value was calculated as the difference between (i) the total fair value of the 2018 Notes and (ii) the fair value of a similar debt instrument excluding the embedded conversion option. We determined an embedded conversion option value of $29.3 million, which was recorded in additional paid-in-capital and reduced the carrying value of the 2018 Notes. The resulting discount on the 2018 Notes was amortized over the expected term of the 2018 Notes, using the effective interest method through the first note holder put date, of February 6, 2023.

Offering-related costs for the 2018 Notes were approximately $2.8 million and were paid in the first and second quarters of 2018. Offering-related costs of $2.2 million were capitalized as debt issuance costs, recorded as an offset to the carrying value of the 2018 Notes, and are amortized over the expected term of the 2018 Notes using the effective interest method through the first note holder put date of February 6, 2023. Offering-related costs of $0.6 million were accounted for as equity issuance costs, recorded as an offset to additional paid-in capital, and are not subject to amortization. Offering-related costs were allocated between debt and equity in the same proportion as the allocation of the 2018 Notes between debt and equity.

In the first quarter of 2019, we received notices from holders of the 2018 Notes electing to voluntarily convert approximately $138.1 million in aggregate principal amount of the 2018 Notes. In February 2019, we notified the Trustee of our intention to exercise our Issuer's Conversion Option with respect to the remaining approximately $11.9 million in aggregate principal amount of 2018 Notes. In total, $150.0 million of the 2018 Notes were converted into 19,460,260 shares of our common stock and the bonds were retired. We recognized a loss of $9.0 million, which represents the difference between the fair value of the bonds retired and their carrying costs. The net impact on equity was $133.3 million and represents the fair value of the bonds retired.

The carrying values of the components of the 2014 Notes and the 2018 Notes are as follows (in thousands):

	March 31, 2019	December 31, 2018
2.75% 2014 Notes due 2034		
Principal amount	$ 51,250	$ 51,250
Unamortized debt discount	(1,215)	(1,232)
Unamortized debt issuance cost	(255)	(224)
	$ 49,780	$ 49,794
2.75% 2018 Notes due 2034		
Principal amount	$ —	$ 149,999
Premium accretion of 2018 Notes	—	3,755
Unamortized debt discount	—	(29,558)
Unamortized debt issuance cost	—	(1,932)
	$ —	$ 122,264
	$ 49,780	$ 172,058

2018 Revolving Credit Facility

In August 2018, the Company entered into a revolving credit facility with Silicon Valley Bank (Revolving Credit Facility) in an aggregate principal amount of up to the lesser of (i) $15.0 million (Maximum Amount) or (ii) the sum of (a) 85% of our eligible receivables and (b) 50% of our eligible inventory, in each case, subject to certain limitations (Borrowing Base), provided that the amount of eligible inventory that may be counted towards the Borrowing Base shall be subject to a cap as set forth in the Revolving Credit Facility. Subject to the level of this borrowing base, the Company may make and repay borrowings from time to time until the maturity of the revolving credit facility. As of March 31, 2019, availability under the revolving credit facility was $13.7 million. There were no borrowings outstanding under the Revolving Credit Facility at March 31, 2019.

The Revolving Credit Facility matures on August 2, 2020 and is collateralized by substantially all the Company's property, other than intellectual property. Loans under the Revolving Credit Facility will bear interest, at the greater of (i) prime rate plus 0.50% or (ii) 5.50%. Interest on any outstanding loans is due and payable monthly and the principal balance is due at maturity though loans can be prepaid at any time without penalty. In addition, the Company pays a quarterly unused revolving line facility fee of .75% per annum on the average unused facility.

Subject to certain exceptions, the Company must pay a prepayment fee equal to (i) 2.00% of the Maximum Amount if it prepays all advances and terminates the Loan Agreement prior to August 2, 2019, or (ii) 1.00% of the Maximum Amount if it prepays all advances and terminates the Loan Agreement on or after August 2, 2019, and prior to the maturity date.

The Company incurred approximately $335,000 of debt issuance costs in connection with the facility, including $225,000 in commitment fees. Half of the commitment fee was paid at the inception of the facility with the remainder due on the earliest of (i) August 2, 2019, (ii) the date on which the Company terminates this Agreement or (iii) the occurrence and continuance of an event of default. Debt issuance costs were capitalized and are being amortized to interest expense over the life of the Revolving Credit Facility.

The Revolving Credit Facility contains customary affirmative and negative covenants which, unless waived by the bank, limit the Company's ability to, among other things, incur additional indebtedness, grant liens, make investments, repurchase stock, pay dividends, transfer assets, enter into affiliate transactions, undergo a change of control, or engage in merger and

acquisition activity, including merging or consolidating with a third party. The Revolving Credit Facility also contains customary events of default, subject to customary cure periods for certain defaults, that include, among other things, non-payment defaults, covenant defaults, material judgment defaults, bankruptcy and insolvency defaults, cross-defaults to certain other material indebtedness, and defaults due to inaccuracy of representation and warranties. Upon an event of default, the lender may declare all or a portion of the outstanding obligations payable by the Company to be immediately due and payable and exercise other rights and remedies provided for under the Revolving Credit Facility. During the existence of an event of default, interest on the obligations under the Revolving Credit Facility could be increased to 5.0% above the otherwise applicable rate of interest.

The Company was in compliance with all the terms and conditions of the Revolving Credit Facility at March 31, 2019.

7. Leases

We have operating leases for buildings, equipment and vehicles. Existing leases have remaining terms of less than 1 year to 8 years. Some leases contain options to extend the lease, usually for up to 5 years, and termination options.

Operating lease right-of-use assets, net consisted of the following (in thousands):

	March 31, 2019		
	Gross Amount	Accumulated Amortization	Net
Operating lease right-of-use buildings	$ 7,556	$ (696)	$ 6,860
Operating lease right-of-use equipment	76	(10)	66
Operating lease right-of-use vehicles	280	(29)	251
Total	$ 7,912	$ (735)	$ 7,177

We entered into a new operating lease for our corporate headquarters in South San Francisco, California which is expected to commence in the first quarter of 2020. The lease term is 10.25 years. We expect to recognize a right-of-use asset and lease liability of approximately $32 million at the lease commencement, based upon our incremental collateralized borrowing rate as of March 31, 2019. In the second quarter of 2019, we established a $2 million letter of credit for the benefit of the landlord, in accordance with the terms of the lease.

(in thousands)	Three Months Ended March 31, 2019
Operating lease cost (including $0.6 million of variable costs)	$ 1,503

Supplemental information:	
Cash paid for amounts included in the measurement of operating lease liabilities (included in net cash used in operating activities)	
Operating cash flows from operating leases	$ 1,018

	As at March 31, 2019
Weighted average remaining lease term (in years)	4.3
Weighted average discount rate	5.3%

Future minimum lease payments and minimum sublease income, net of expenses of $75 thousand, under non-cancelable operating leases as of March 31, 2019, were as follows (in thousands):

FLUIDIGM CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(Unaudited)

Fiscal Year	Minimum Lease Payments for Operating Leases	Minimum Sublease Income	Net Amount
2019 (remainder of the year)	$ 3,053	$ (434)	$ 2,619
2020	2,209	(111)	2,098
2021	1,264	—	1,264
2022	931	—	931
2023	716	—	716
Thereafter	1,790	—	1,790
Total future minimum payments (income)	$ 9,963	$ (545)	$ 9,418
Less: imputed interest	(1,057)		
Total	$ 8,906		

Reported as of March 31, 2019	
Current operating lease liabilities	$ 3,701
Long-term lease liabilities	5,205
Total	$ 8,906

Disclosures related to periods prior to adoption of ASC 842

Operating lease rent expense, net of amortization of lease incentives and sublease income, was $1.2 million for the three months ended March 31, 2018 for the prior year comparative period before the adoption of ASC 842.

As of December 31, 2018, future minimum lease payment obligations and minimum sublease income, net of expenses, under noncancelable operating leases before the adoption of ASC 842 were disclosed as follows (in thousands):

Fiscal Year	Minimum Lease Payments for Operating Leases	Minimum Sublease Income	Net Amount
2019	$ 4,184	$ (520)	$ 3,664
2020	2,213	(164)	2,049
2021	1,245	—	1,245
2022	827	—	827
2023	552	—	552
Thereafter	1,241	—	1,241
Total future minimum payments (income)	$ 10,262	$ (684)	$ 9,578

8. Fair Value of Financial Instruments

The following tables summarize our cash and available-for-sale securities by significant category within the fair value hierarchy (in thousands):

	March 31, 2019					
	Carrying Amount	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Short-Term Marketable Securities
Assets:						
Cash	$ 12,600	$ —	$ —	$ 12,600	$ 12,600	$ —
Available-for-sale:						
Level I:						
Money market funds	$ 53,034	$ 2	$ —	$ 53,036	$ 53,036	$ —
U.S. treasury securities	9,499	—	—	9,499	—	9,499
Subtotal	$ 62,533	$ 2	$ —	$ 62,535	$ 53,036	$ 9,499
Level II:						
U.S. government and agency securities	—	—	—	—	—	—
Total	$ 75,133	$ 2	$ —	$ 75,135	$ 65,636	$ 9,499

	December 31, 2018					
	Carrying Amount	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Short-Term Marketable Securities
Assets:						
Cash	$ 17,685	$ —	$ —	$ 17,685	$ 17,685	$ —
Available-for-sale:						
Level I:						
Money market funds	$ 77,716	$ —	$ —	$ 77,716	$ 77,716	$ —
U.S. treasury securities	—	—	—	—	—	—
Subtotal	$ 77,716	$ —	$ —	$ 77,716	$ 77,716	$ —
Level II:						
U.S. government and agency securities	—	—	—	—	—	—
Total	$ 95,401	$ —	$ —	$ 95,401	$ 95,401	$ —

There were no transfers between Level I and Level II measurements during the three months ended March 31, 2019, and December 31, 2018, and there were no changes in the valuation techniques used.

The contractual maturity periods of $9.5 million of our marketable debt securities are due within one year from March 31, 2019.

Convertible Notes

The estimated fair value of the 2014 and 2018 Notes is based on a market approach and represents a Level II valuation. When determining the estimated fair value of our long-term debt, we used a commonly accepted valuation methodology and market-based risk measurements that are indirectly observable, such as credit risk.

The following table summarizes the par value, carrying value and the estimated fair value of the 2014 and 2018 Notes at March 31, 2019 and December 31, 2018, respectively (in thousands):

	March 31, 2019			December 31, 2018		
	Par Value	Carrying Value	Fair Value	Par Value	Carrying Value	Fair Value
2014 Notes	$ 51,250	$ 49,780	$ 48,431	$ 51,250	$ 49,794	$ 43,665
2018 Notes	—	—	—	149,999	122,264	171,843
Total	$ 51,250	$ 49,780	$ 48,431	$ 201,249	$ 172,058	$ 215,508

9. Shareholders' Equity

Conversion of 2018 Notes

In the first quarter of 2019, we issued 19,460,260 shares of our common stock in connection with the conversion of our 2018 Notes (see Note 6). As a result of this issuance of common stock, we recorded a total of $133.3 million of equity, which is equivalent to the fair value of the bonds retired.

10. Stock-Based Plans

Our board of directors sets the terms, conditions, and restrictions related to our Employee Stock Purchase Plan (ESPP) and the grant of stock options, restricted stock units (RSU) and performance-based awards under our various stock-based plans. Our board of directors determines the number of awards to grant and also sets vesting criteria.

In general, RSUs vest on a quarterly basis over a period of four years from the date of grant at a rate of 25% on the first anniversary of the grant date and ratably each quarter over the remaining 12 quarters, subject to the employees' continued employment.

Incentive stock options and non-statutory stock options granted under the 2011 Plan have a term of no more than ten years from the date of grant and an exercise price of at least 100% of the fair market value of the underlying common stock on the date of grant. If a participant owns stock representing more than 10% of the voting power of all classes of our stock on the grant date, an incentive stock option awarded to the participant will have a term of no more than five years from the date of grant and an exercise price of at least 110% of the fair market value of the underlying common stock on the date of grant. Generally, options vest at a rate of either 25% on the first anniversary of the option grant date and ratably each month over the remaining period of 36 months, or ratably each month over 48 months. We may grant options with different vesting terms from time-to-time.

For performance-based share awards, our board of directors sets the performance objectives and other vesting provisions in determining the number of shares or value of performance units and performance shares that will be paid out. Such payout will be a function of the extent to which performance objectives or other vesting provisions have been achieved.

2011 Equity Incentive Plan

On January 28, 2011, our board of directors adopted the 2011 Equity Incentive Plan (2011 Plan) under which incentive stock options, non-statutory stock options, RSUs, stock appreciation rights, performance units, and performance shares may be granted to our employees, directors, and consultants.

2009 Equity Incentive Plan and 1999 Stock Option Plan

Our 2009 Equity Incentive Plan (2009 Plan) terminated on the date the 2011 Plan was adopted. Options granted and shares issued under the 2009 Plan that were outstanding on the date the 2011 Plan became effective remained subject to the terms of the 2009 Plan.

2017 Inducement Award Plan

On January 5, 2017, we adopted the Fluidigm Corporation 2017 Inducement Award Plan (Inducement Plan) and reserved 2 million shares of our common stock for issuance pursuant to equity awards granted under the Inducement Plan. The Inducement Plan provides for the grant of equity-based awards and its terms are substantially similar to the 2011 Plan. In accordance with Rule 5635(c)(4) of the Nasdaq Listing Rules, awards under the Inducement Plan may only be made to individuals not previously our employees or non-employee members of our board of directors (or following such individual's bona fide period of non-employment), as an inducement material to the individual's entry into employment with us or in connection with a merger or acquisition, to the extent permitted by Rule 5635(c)(3) of the Nasdaq Listing Rules.

Valuation and Expense Information

We use the Black-Scholes option-pricing model to estimate the fair value of stock options granted under our equity incentive plans. We grant stock options at exercise prices not less than the fair value of our common stock at the date of grant. The fair value of RSUs granted to employees was estimated on the date of grant by multiplying the number of shares granted by the fair market value of our common stock on the grant date.

Activity under the 2011 Plan, the 2009 Plan, the 1999 Plan, and the Inducement Plan is as follows:

Restricted Stock Units:

		Number of Units (in 000s)	Weighted-Average Grant Date Fair Value per Unit
Balance at December 31, 2018	1,812,000	1,812 7	$ 7.09
RSU granted		491	$ 10.32
RSU released		(144)	$ 9.16
RSU forfeited		(93)	$ 8.70
Balance as at March 31, 2019	1,812,000	2,066	$ 7.65

As of March 31, 2019, the unrecognized compensation costs related to outstanding unvested RSUs under our equity incentive plans were $12.9 million. We expect to recognize these costs over a weighted average period of 3.2 years.

***Stock Options*:**

	Number of Options (000s)	Weighted-Average Exercise Price per Option	Weighted-Average Remaining Contractual Life (in Years)	Aggregate Intrinsic Value in (000s)
Balance at December 31, 2018	2,385	$ 7.56	7.8	$ 5,991
Options granted	—			
Options exercised	(53)	$ 5.54		$ 254
Options forfeited	(47)	$ 8.91		
Balance as at March 31, 2019	2,285	$ 7.58	7.5	$ 14,702
Vested at March 31, 2019	1,129	$ 9.43	6.3	$ 6,001
Expected to vest at March 31, 2019	1,156	$ 5.76	8.7	$ 8,698

As of March 31, 2019, the unrecognized compensation costs related to outstanding unvested options under our equity incentive plans were $3.6 million. We expect to recognize these costs over a weighted average period of 2.4 years.

Performance-based Awards:

Performance Stock Units

During the three months ended March 31, 2019, we granted 375,339 performance stock units to certain executive officers and senior level employees. Similar to the performance stock units granted in 2018, the number of performance stock units ultimately earned is calculated based on the Total Shareholder Return (TSR) of our common stock as compared to the TSR of a defined group of peer companies during the three-year performance period. The percentage of performance stock units that vest will depend on our relative position at the end of the performance period and can range from 0% to 200% of the number of units granted.

Under FASB ASC Topic 718, the provisions of the performance stock unit awards related to TSR are considered a market condition, and the effects of that market condition should be reflected in the grant date fair value of the awards. We used a Monte Carlo simulation pricing model to incorporate the market condition effects at our grant date with a fair value of $16.56 per unit.

Activity under the performance stock units is as follows:

	Number of Units (in 000s)	Weighted-Average Grant Date Fair Value per Unit
Balance at December 31, 2018	155	$ 10.09
PSU granted	375	$ 16.56
PSU released	—	$ —
PSU forfeited	—	$ —
Balance as at March 31, 2019	530	$ 14.67

As of March 31, 2019, the unrecognized compensation costs related to these awards were $7.0 million. We expect to recognize these costs over a weighted average period of 2.6 years.

2017 Employee Stock Purchase Plan

Our ESPP offers U.S. and some non-U.S. employees the right to purchase shares of our common stock. Our ESPP has a six-month offering period, with a new period commencing on the first trading day on or after May 31 and November 30 of each year. Employees are eligible to participate through payroll deductions of up to 10% of their compensation and may not purchase more than $25,000 of stock for any calendar year. The purchase price at which shares are sold under the ESPP is 85% of the lower of the fair market value of a share of our common stock on the first day of the offering period or the last day of the offering period.

Share-based Compensation

We recognized share-based compensation expense as follows (in thousands):

	Three Months Ended March 31,	
	2019	2018
Options and Restricted Stock Units	$ 2,145	$ 1,626
Employee Stock Purchase Plan	126	121
Total Share-based Compensation	$ 2,271	$ 1,747

11. Income Taxes

The expense or benefit for income taxes for the periods presented differs from the 21% U.S. Federal statutory rate, for the three months ended March 31, 2019 and 2018, respectively, primarily due to maintaining a valuation allowance for deferred tax assets, which primarily consist of net operating loss carryforwards.

We recorded a tax provision of $42,000 for the three months ended March 31, 2019, which was primarily attributable to a tax provision from our foreign operations, offset by the tax benefit from the amortization of our acquisition-related deferred tax liability. We recorded a tax benefit of $1.2 million for the three months ended March 31, 2018. The benefit was primarily attributable to the tax benefit from the amortization of our acquisition-related deferred tax liability, partially offset by a provision from our foreign operations. The income tax provision for the three months ended March 31, 2019, as compared to the income tax benefit during the same period in the prior year period, is largely attributable to the income in the tax provision from our foreign operations.

Recording deferred tax assets is appropriate when realization of these assets is more likely than not. Assessing the realizability of deferred tax assets is dependent upon several factors including historical financial results. The deferred tax assets have been offset by valuation allowances.

12. Information about Geographic Areas

We operate in one reporting segment that develops, manufacturers and commercializes tools for life sciences research. Our chief executive officer manages our operations and evaluates our financial performance on a consolidated basis. For purposes of allocating resources and evaluating regional financial performance, our chief executive officer reviews separate sales information for the different regions of the world. Our general and administrative expenses and our research and development expenses are not allocated to any specific region. Most of our principal operations, other than manufacturing, and our decision-making functions are located at our corporate headquarters in the United States.

A summary table of our total revenue by geographic areas of our customers and by product and services for the three months ended March 31, 2019 and 2018 is included in Note 3 to the condensed consolidated financial statements of this quarterly report on Form 10-Q.

Sales to customers in the United States represented $12.5 million or 41.6%, of total revenues for the three months ended March 31, 2019. Sales to customers in the United States represented $10.1 million or 40.1% of total revenues for the three months ended March 31, 2018.

Sales to customers in China represented $3.5 million, or 11.6%, of total revenues for the three months ended March 31, 2019. Sales to customers in China represented $3.3 million, or 13.1%, of total revenues for the three months ended March 31, 2018. Except for China, no other foreign country or jurisdiction had sales in excess of 10% of our total revenue during the three months ended March 31, 2018. For the three months ended March 31, 2019, Japan also had sales in excess of 10% of our total revenues. Sales to customers in Japan represented $4.0 million, or 13.4%, of total revenues.

No individual customer represented more than 10% of our total revenues for the three months ended March 31, 2019, and 2018.

13. Commitments and Contingencies

Indemnification

From time to time, we have entered into indemnification provisions under certain of our agreements in the ordinary course of business, typically with business partners, customers, and suppliers. Pursuant to these agreements, we may indemnify, hold harmless, and agree to reimburse the indemnified parties on a case-by-case basis for losses suffered or incurred by the indemnified parties in connection with any patent or other intellectual property infringement claim by any third party with respect to our products. The term of these indemnification provisions is generally perpetual from the time of the execution of the agreement. The maximum potential amount of future payments we could be required to make under these indemnification provisions is typically not limited to a specific amount. In addition, we have entered into indemnification agreements with our officers, directors, and certain other employees. With certain exceptions, these agreements provide for indemnification for related expenses including, among others, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding.

Contingencies

From time to time, we may be subject to various legal proceedings and claims arising in the ordinary course of business. These include disputes and lawsuits related to intellectual property, mergers and acquisitions, licensing, contract law, tax, regulatory, distribution arrangements, employee relations and other matters. Periodically, we review the status of each matter and assess its potential financial exposure. If the potential loss from any claim or legal proceeding is considered probable and a range of possible losses can be estimated, we accrue a liability for the estimated loss. Legal proceedings are subject to uncertainties, and the outcomes are difficult to predict. Because of such uncertainties, accruals are based only on the best information available at the time. As additional information becomes available, we continue to reassess the potential liability related to pending claims and litigation and we may revise estimates.

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

The following discussion and analysis should be read together with our condensed consolidated financial statements and the notes to those statements included elsewhere in this Form 10-Q. This Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended, or Exchange Act, that are based on our management's beliefs and assumptions and on information currently available to our management. The forward-looking statements are contained principally in the section entitled "Risk Factors" and this Management's Discussion and Analysis of Financial Condition and Results of Operations. Forward-looking statements include information concerning our possible or assumed future cash flow, revenue, sources of revenue and results of operations, cost of product revenue and product margin, operating and other expenses, unit sales and the selling prices of our products, business strategies, financing plans, expansion of our business, competitive position, industry environment, potential growth opportunities, market growth expectations, and the effects of competition. Forward-looking statements include statements that are not historical facts and can be identified by terms such as "anticipates," "believes," "could," "seeks," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "projects," "should," "will," "would," or similar expressions and the negatives of those terms.

Forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements. We discuss these risks in greater detail in Part II, Item 1A, "Risk Factors," elsewhere in this quarterly report on Form 10-Q, and in our annual report on Form 10-K filed with the Securities and Exchange Commission (SEC). Given these uncertainties, you should not place undue reliance on these forward-looking statements. Also, forward-looking statements represent our management's beliefs and assumptions only as of the date of this Form 10-Q.

Except as required by law, we assume no obligation to update these forward-looking statements, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future. You should read this Form 10-Q completely and with the understanding that our actual future results may be materially different from what we expect.

Unless the context requires otherwise, references in this Form 10-Q to "Fluidigm," the "Company," "we," "us," and "our" refer to Fluidigm Corporation and its subsidiaries.

Overview

Fluidigm is a global company that improves life through comprehensive health insight. Our innovative technologies and multi-omic tools are used by researchers to reveal meaningful insights in health and disease, identify biomarkers to inform decisions and accelerate the development of more effective therapies. We create, manufacture, and market innovative technologies and life science tools, including preparatory and analytical instruments for Mass Cytometry, PCR, Library Prep, Single Cell Genomics, and consumables, including IFCs, assays, and reagents.

Our focus is on the most pressing needs in translational and clinical research, including cancer, immunology and immunotherapy. We use proprietary CyTOF® and microfluidics technologies to develop innovative end-to-end solutions that have the flexibility required to meet the needs of translational research and the robustness to support high-impact clinical research studies. We sell our products to leading academic, government, pharmaceutical, biotechnology and plant and animal research laboratories worldwide.

We distribute our systems through our direct sales force and support organizations located in North America, Europe, and Asia-Pacific, and through distributors or sales agents in several European, Latin American, Middle Eastern, and Asia-Pacific countries. Our manufacturing operations are located in Singapore and Canada. Our facility in Singapore manufactures our genomics instruments, which are assembled by our contract manufacturer located within our Singapore facility. All of our IFCs for commercial sale and some IFCs for our research and development purposes are also fabricated at our Singapore facility. Our mass cytometry instruments for commercial sale, as well as for internal research and development purposes, are manufactured at our facility in Canada. We also manufacture assays and reagents at our facilities in the United States. As part of our on-going

efforts related to operational excellence and improving efficiencies, we are consolidating our North American production activities into our Canadian facility.

Our total revenue for the three months ended March 31, 2019 was $30.1 million compared to $25.2 million for the three months ended March 31, 2018. Our total revenue was $113.0 million in 2018, $101.9 million in 2017, and $104.4 million in 2016. We have incurred significant net losses since our inception in 1999 and, as of March 31, 2019, our accumulated deficit was $584.3 million.

At the end of 2016, we began reallocating our resources based on revenue contribution and growth expectations across our target markets, including a reorganization of our sales team and commercial leadership. We implemented certain operational efficiencies and cost-savings initiatives beginning in the first quarter of 2017 intended to align our resources with our product strategy, reduce our operating expenses, and manage our cash flows. In 2017 and 2018, we grew our revenues, increased gross margins, reduced operating expenses, streamlined our manufacturing operations, and rationalized our headcount and facilities. These activities have resulted in lower net losses, improving from $76.0 million in 2016 to $59.0 million in 2018. We have also strengthened our balance sheet through the issuance of common stock and reduction of debt. In August 2017, we sold 9.1 million shares of common stock for aggregate net proceeds of approximately $28.8 million; in December 2018, we sold approximately 9.4 million shares of common stock for aggregate net proceeds of $59.1 million. In March 2018, we refinanced $150 million of our 2014 Notes with the issuance of our 2018 Notes, which effectively extended the maturity of the debt while providing us with additional financing flexibility. The 2018 Notes were subsequently converted into 19.5 million shares of our common stock during the first quarter of 2019. The conversion is described in Note 6 of our March 31, 2019 condensed consolidated financial statements.

Critical Accounting Policies, Significant Judgments and Estimates

Our condensed consolidated financial statements and the related notes included elsewhere in this Form 10-Q are prepared in accordance with accounting principles generally accepted in the United States. The preparation of these condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs, and expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Changes in accounting estimates may occur from period to period. Accordingly, actual results could differ significantly from the estimates made by our management. We evaluate our estimates and assumptions on an ongoing basis. To the extent there are material differences between these estimates and actual results, our future financial statement presentation, financial condition, results of operations, and cash flows will be affected.

Except for the adoption of ASC 842 disclosed below, there have been no material changes in our critical accounting policies and estimates in the preparation of our condensed consolidated financial statements during the three months ended March 31, 2019, compared to those disclosed in our annual report on Form 10-K for the year ended December 31, 2018, as filed with the SEC on March 18, 2019.

Recent Accounting Pronouncements

Adoption of New Accounting Guidance

In February 2016, the FASB established Topic 842, Leases, by issuing Accounting Standards Update (ASU) No. 2016-02, which requires lessees to recognize operating leases on the balance sheet and disclose key information about leasing arrangements. Topic 842 was subsequently amended by ASU No. 2018-01, Land Easement Practical Expedient for Transition to Topic 842; ASU No. 2018-10, Codification Improvements to Topic 842, Leases; and ASU No. 2018-11, Targeted Improvements. The new standard establishes a right-of-use (ROU) model that requires a lessee to recognize a ROU asset and lease liability on the balance sheet for all leases with a term longer than 12 months. Leases are classified as finance or operating; the classification will impact the expense recognition in the income statement.

Modified Retrospective Transition approach is required, applying the new standard to all leases existing at the date of initial application. An entity may choose to use either (1) its effective date or (2) the beginning of the earliest comparative period presented in the financial statements as its date of initial application. We adopted the new standard on January 1, 2019 and used the effective date of the standard as our date of initial application. Consequently, previously presented financial information will not be updated, and the disclosures required under the new standard will not be provided for dates and periods before January 1, 2019. For dates and periods prior to January 1, 2019, the original disclosures under ASC 840 will be disclosed.

The new standard provides several optional practical expedients in transition. We elected the 'package of practical expedients,' which permits us to not reassess under the new standard our prior conclusions about lease identification, lease classification and initial direct costs. We did not elect the use-of-hindsight or the practical expedient pertaining to land easements; the latter not being applicable to us.

On adoption, we recognized $9.2 million of lease liabilities, based on the present value of the current minimum lease payments over the lease term, discounted using our collateralized incremental borrowing rate, with corresponding ROU assets of $7.4 million. The difference between the initial lease liability and ROU asset is attributable to deferred rent. We did not have any impact to retained earnings from the adoption of ASC 842.

The new standard also provides certain accounting elections for an entity's ongoing accounting. We have elected the short-term lease recognition exemption for all leases that qualify. This means, for those leases that qualify, we will not recognize ROU assets or lease liabilities for leases with an initial lease term of one year or less. We have also elected to not separate lease and nonlease components for our building leases. The nonlease components are generally variable in nature and are expected to comprise the majority of our variable lease costs. Variable costs are expensed as incurred. We have taken a portfolio approach for our vehicle leases by country.

See Note 2 — "Summary of Significant Accounting Policies" in the notes to our condensed consolidated financial statements in this quarterly report on Form 10-Q for recent accounting changes and pronouncements.

Results of Operations

The following table presents our historical condensed consolidated statements of operations data for the three months ended March 31, 2019, and 2018, and as a percentage of total revenue for the respective periods (in thousands):

	Three Months Ended March 31,			
	2019		2018	
Revenue	$ 30,111	100 %	$ 25,248	100 %
Cost of revenue	13,121	44	11,820	47
Gross profit	16,990	56	13,428	53
Operating expenses:				
Research and development	8,372	28	7,256	29
Selling, general and administrative	22,824	76	18,805	74
Total operating expenses	31,196	104	26,061	103
Loss from operations	(14,206)	(47)	(12,633)	(50)
Interest expense	(2,701)	(9)	(1,889)	(7)
Loss on extinguishment of debt	(9,000)	(30)	—	—
Other income, net	484	2	92	—
Loss before income taxes	(25,423)	(84)	(14,430)	(57)
Income tax benefit (expense)	(42)	—	1,183	5
Net loss	$ (25,465)	(84)%	$ (13,247)	(52)%

Revenue

We generate revenue primarily from sales of our products and services. Our product revenue consists of sales of instruments and consumables. Consumable revenues are largely driven by the size of our installed base of instruments and the annual level of pull-through per instrument. Service revenue is linked to the sales and installed base of our instruments as our service revenue consists of post-warranty service contracts, preventive maintenance plans, instrument parts, installation and training.

We sell our instruments to leading academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, and biopharmaceutical, biotechnology, and plant and animal research companies. No single customer represented more than 10% of our total revenue for the three months ended March 31, 2019, and 2018. Total

revenue from our five largest customers comprised 22% and 16% of our total revenue for the three months ended March 31, 2019, and 2018, respectively.

The following table presents our revenue by source for the three months ended March 31, 2019, and 2018 (in thousands):

	Three Months Ended March 31,				Year- Over-Year Change
	2019		2018		
Revenue:					
Instruments	$ 12,840	42%	$ 7,520	30%	71 %
Consumables	11,987	40	12,957	51	(7)%
Product revenue	24,827	82	20,477	81	21 %
Service revenue	5,284	18	4,771	19	11 %
Total revenue	$ 30,111	100%	$ 25,248	100%	19 %

The following table presents our total revenue by geographic area of our customers and as a percentage of total revenue for the three months ended March 31, 2019, and 2018 (in thousands):

	Three Months Ended March 31,				Year-Over-Year Change
	2019		2018		
Americas	$ 12,971	43%	$ 10,834	42%	20 %
EMEA	8,156	27	8,473	34	(4)%
Asia-Pacific	8,984	30	5,941	24	51 %
Total	$ 30,111	100%	$ 25,248	100%	19 %

The Americas revenue includes revenue generated in the United States of $12.5 million and $10.1 million for the three months ended March 31, 2019, and March 31, 2018, respectively.

Total Revenue

Total revenue increased by $4.9 million, or 19%, for the three months ended March 31, 2019 compared to the three months ended March 31, 2018. The increase was attributable to a $4.4 million, or 21%, increase in product revenue and a $0.5 million, or 11%, increase in service revenue. The increase in revenue was driven by increased unit sales of mass cytometry instruments and related services, partially offset by lower sales of microfluidics products.

Revenue in the Americas grew 20% for the three months ended March 31, 2019, compared to the three months ended March 31, 2018. The increase in the Americas was primarily due to strong mass cytometry instruments sales, partially offset by lower microfluidics revenue. Unfavorable foreign exchange rates drove the majority of the 4% decrease in EMEA revenues, along with lower microfluidics revenues. The growth in Asia-Pacific was driven by increased unit sales of mass cytometry products, partially offset by reduced microfluidics revenue. Revenue growth was particularly strong in Japan, which accounted for 13.4% of consolidated revenues in the first quarter of 2019, more than doubling revenues from the year ago period. On a company-wide basis, weaker foreign exchange rates negatively impacted revenues by $0.4 million for the first quarter of 2019, compared to the prior year period.

Product Revenue

Product revenue increased by $4.4 million, or 21%, for the three months ended March 31, 2019 compared to the three months ended March 31, 2018. Instrument revenue increased by $5.3 million, or 71%, for the three months ended March 31, 2019 compared to the three months ended March 31, 2018. The increase was primarily attributable to higher unit sales of our Helios and Hyperion Imaging Systems, partially offset by lower sales of our microfluidics products. Consumables revenue decreased by $1.0 million, or 7%, for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, driven by lower sales of microfluidics consumables.

We expect the average selling prices and volumes of our products to fluctuate over time based on market conditions, product mix, and currency fluctuations. We cannot provide assurance concerning future revenue growth, if any.

Service Revenue

Service revenue increased by $0.5 million, or 11%, for the three months ended March 31, 2019 compared to the three months ended March 31, 2018. The increase in service revenue was largely due to post-warranty sales contracts and repairs.

Cost of Revenue, Gross Profit and Gross Margin

The following table presents our costs of product and service revenue, gross profit and gross margin for the three months ended March 31, 2019, and 2018 (in thousands):

	Three Months Ended March 31,		Year-Over-Year Change
	2019	2018	
Cost of product revenue	$ 11,389	$ 10,222	11%
Cost of service revenue	1,732	1,598	8%
Total cost of revenue	$ 13,121	$ 11,820	11%
Gross profit	$ 16,990	$ 13,428	27%
Gross margin	56.4%	53.2%	3.2

Cost of product revenue includes manufacturing costs incurred in the production process, including component materials, labor and overhead, packaging, and delivery costs. In addition, cost of product revenue includes amortization of developed technology and intangibles, royalty costs for licensed technologies included in our products, warranty, provisions for slow-moving and obsolete inventory, and stock-based compensation expense. Our cost of product revenue and related product margin may fluctuate depending on the capacity utilization of our manufacturing facilities in response to market conditions and the demand for our products.

Cost of service revenue includes direct labor hours, overhead, and instrument parts. Our cost of product revenue and related product margin may fluctuate depending on the capacity utilization of our manufacturing facilities in response to market conditions and the demand for our products. Our cost of service revenue and related service margin may fluctuate depending on the variability in material and labor costs of servicing instruments between mass cytometry and genomics.

Gross margin increased by 3.2 percentage points for the three months ended March 31, 2019, compared to the three months ended March 31, 2018. The year-over-year increase in gross margin was due to higher service margins and higher plant utilization, as well as the impact of spreading fixed depreciation and amortization over a higher revenue base. Product mix negatively impacted gross margins, as a larger percentage of our revenues came from instruments sales, which tend to have a lower gross margin than consumables.

Operating Expenses

The following table presents our operating expenses for the three months ended March 31, 2019, and 2018 (in thousands):

	Three Months Ended March 31,		Year-Over-Year Change
	2019	2018	
Research and development	$ 8,372	$ 7,256	15%
Selling, general and administrative	22,824	18,805	21%
Total	$ 31,196	$ 26,061	20%

Research and Development

Research and development expense consist primarily of compensation-related costs, product development and material expenses, and other allocated facilities and information technology expenses. We have made substantial investments in research and development since our inception. Our research and development efforts have focused primarily on enhancing our technologies and supporting development and commercialization of new and existing products and services.

Research and development expense increased by $1.1 million, or 15%, for the three months ended March 31, 2019 compared to the three months ended March 31, 2018. Approximately $0.7 million of the increase is due to compensation-related costs, reflecting increased headcount and merit raises, with the remainder of the increase due to lab materials.

Selling, General and Administrative

Selling, general and administrative expense consists primarily of personnel costs for our sales and marketing, business development, finance, legal, human resources, and general management, as well as professional services, such as legal and accounting services.

Selling, general and administrative expense increased $4.0 million, or 21% for the three months ended March 31, 2019, compared to the three months ended March 31, 2018. Compensation-related costs contributed $1.8 million to the increase, reflecting a 9% increase in average headcount, along with higher stock-based compensation. Business development costs accounted for $1.6 million of the increase, along with a $0.5 million increase in advertising and promotional costs.

Interest Expense and Other Income, Net

The following table presents these items for the three months ended March 31, 2019, and 2018 (in thousands):

	Three Months Ended March 31,		Year-Over-Year Change
	2019	2018	
Interest expense	$ 2,701	$ 1,889	43%
Loss on extinguishment of debt	9,000	—	NA
Other income, net	(484)	(92)	426%
Total	$ 11,217	$ 1,797	524%

In February 2014, we issued $201.3 million aggregate principal amount of our 2.75% 2014 Notes due 2034, (2014 Notes).
In March 2018, we entered into privately negotiated transactions with certain holders of our 2014 Notes to exchange $150.0 million in aggregate principal amount of the 2014 Notes for $150.0 million in aggregate principal amount of our new 2.75% Exchange Convertible Senior Notes due 2034. As the 2018 Notes are convertible, at our election, into cash, shares of our common stock, or a combination of cash and shares of our common stock, we accounted for the 2018 Notes under the cash conversion guidance in ASC 470. Because of this conversion option, along with a redemption premium, the net effective interest rate for the 2018 Notes is higher than the 2014 Notes. The effective interest rate on the 2014 Notes and the 2018 Notes is approximately 3.0% and 12.3%, respectively. The majority of the difference in effective interest rates is due to non-cash amortization of debt discounts and premiums. With the higher effective interest rate, interest expense increased for the three months ended March 31, 2019, compared to the three months ended March 31, 2018.

In the first quarter of 2019, we received notices from holders of the 2018 Notes electing to voluntarily convert approximately $138.1 million in aggregate principal amount of the 2018 Notes. In February 2019, we notified the Trustee of our intention to exercise our Issuer's Conversion Option with respect to the remaining approximately $11.9 million in aggregate principal amount of 2018 Notes. In total, $150.0 million of the 2018 Notes were converted into approximately 19.5 million shares of our common stock and the bonds retired. In accordance with ASC 470, we recognized a loss of $9 million on the conversion of the debt, representing the difference between the fair value of the bonds converted and the carrying value of the bonds at the time of conversion.

Following the retirement of the 2018 Notes, only the $51.25 million principal of the 2014 Notes remain outstanding as at March 31, 2019.

Other income increased by $0.4 million for the three months ended March 31, 2019, compared to the three months ended March 31, 2018, primarily due to higher interest income on our higher cash and investment balances.

Income Tax Benefit (Expense)

We recorded a tax provision of $42,000 for the three months ended March 31, 2019, which was primarily attributable to a tax provision from our foreign operations, offset by the tax benefit from the amortization of our acquisition-related deferred tax liability. We recorded a tax benefit $1.2 million for the three months ended March 31, 2018. The benefit was primarily attributable to the tax benefit from the amortization of our acquisition-related deferred tax liability, partially offset by a provision from our foreign operations. The income tax provision for the three months ended March 31, 2019, as compared to the income tax benefit during the same period in the prior year period, is largely attributable to higher income in our non-US operations, which has resulted in a tax provision in our foreign operations that exceeds the tax benefit from the amortization of our acquisition-related deferred tax liability.

Liquidity and Capital Resources

Sources of Liquidity

As of March 31, 2019, our principal sources of liquidity consisted of $65.6 million of cash and cash equivalents, $9.5 million of short-term investments as well as availability under our Revolving Credit Facility.

The following table presents our cash flow summary for each period presented (in thousands):

	Three Months Ended March 31,	
	2019	2018
Net cash used in operating activities	$ (20,130)	$ (16,176)
Net cash used in investing activities	(9,757)	(263)
Net cash provided by (used in) financing activities	147	(58)
Net decrease in cash and cash equivalents	(29,767)	(16,084)

Net Cash Used in Operating Activities

We derive cash flows from operations primarily from cash collected 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 expanded our business and built our infrastructure domestically and internationally.

Net cash used in operating activities for the three months ended March 31, 2019, was $20.1 million and consisted of a net loss of $25.5 million, adjusted for non-cash items of $17.3 million. Non-cash items included a loss on extinguishment of debt of $9 million, amortization of developed technology of $2.8 million, stock-based compensation expense of $2.3 million, amortization of debt discounts, premium and issuance cost of $2.0 million and depreciation and amortization of $1.2 million. The net change in assets and liabilities included a decrease in other liabilities of $10.9 million, an increase in accounts receivable of $2.5 million, an increase in inventories of $0.7 million, and an increase in other assets of $1.2 million, partially offset by an increase in accounts payable of $2.6 million, and an increase in deferred revenue of $0.7 million.

Net cash used in operating activities for the three months ended March 31, 2018, was $16.2 million, and consisted of a net loss of $13.2 million, adjusted for non-cash items of $6.5 million. Non-cash items included stock-based compensation expense of $1.7 million, amortization of developed technology of $2.8 million, depreciation and amortization of $2.0 million. The net change in assets and liabilities included an increase in inventory of $0.5 million, an increase in other assets of $0.5 million and an increase in accounts receivable of $1.3 million, offset by an increase in accounts payable of $1.0 million and an increase in deferred revenue of $0.7 million.

Net Cash Used in Investing Activities

Our primary investing activities consist of purchases, sales, and maturities of our short-term investments and to a much lesser extent, capital expenditures for manufacturing, laboratory, computer equipment and software to support our infrastructure and work force.

Net cash used in investing activities was $9.8 million during the three months ended March 31, 2019 and consisted of purchases of investments of $9.5 million and capital expenditures of $0.3 million.

Net cash used in investing activities for three months ended March 31, 2018 was $0.3 million and consisted of purchases of investments of $0.2 million and capital expenditures of $0.1 million.

Net Cash Provided by (Used in) Financing Activities

Net cash provided by financing activities was $0.1 million during the three months ended March 31, 2019. Net cash provided by financing activities primarily consisted of $0.3 million from the exercise of stock options, partially offset by $0.1 million for income taxes related to net share settlement of equity awards.

Net cash used in financing activities was $0.1 million for the three months ended March 31, 2018 and consisted of net proceeds of $0.1 million from exercise of stock options, partially offset by payments for taxes related to net share settlement for vested restricted stock units.

Liquidity and Capital Resources

As discussed above, in the first quarter of 2019, we received notices from holders of the 2018 Notes electing to voluntarily convert approximately $138.1 million in aggregate principal amount of the 2018 Notes. In February 2019, we notified the Trustee of our intention to exercise our Issuer's Conversion Option with respect to the remaining approximately $11.9 million in aggregate principal amount of 2018 Notes. In total, $150.0 million of the 2018 Notes were converted into approximately 19.5 million shares of our common stock and the bonds retired.

We currently have outstanding $51.3 million in aggregate principal amount of our 2014 Notes. The 2014 Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the 2014 Notes. Holders of the 2014 Notes may require us to repurchase all or a portion of their 2014 Notes on each of February 6, 2021, February 6, 2024, and February 6, 2029 at a repurchase price in cash equal to 100% of the principal amount of the Notes plus accrued and unpaid interest. If we undergo a fundamental change, as defined, holders of the 2014 Notes may require us to repurchase the 2014 Notes in whole or in part for cash at a repurchase price equal to 100% of the principal amount of the 2014 Notes plus accrued and unpaid interest.

We have a Revolving Credit Facility with Silicon Valley Bank, which matures on August 2, 2020. Amounts drawn under the Revolving Credit Facility will be used for working capital and general corporate purposes. As of March 31, 2019, total availability under the Revolving Credit Facility was $13.7 million. We currently have no outstanding debt under the Revolving Credit Facility, and we are in compliance with all the terms and conditions of the loan agreement governing the Revolving Credit Facility. See Note 6 to the condensed consolidated financial statements included in this Form 10-Q for more information about the Revolving Credit Facility.

We believe our existing cash, cash equivalents, and investments will be sufficient to meet our working capital and capital expenditure needs for at least the next 18 months. However, we may experience lower than expected cash generated from sales of our products and services or greater than expected capital expenditures, cost of revenue, or operating expenses, and we may need to raise additional capital to fund our operations, further our research and development activities, or acquire or invest in a business. Our future funding requirements will depend on many factors, including market acceptance of our products, the cost of our research and development activities, the cost of filing and prosecuting patent applications, the cost associated with litigation or disputes relating to intellectual property rights or otherwise, the cost and timing of regulatory clearances or approvals, if any, the cost and timing of establishing additional sales, marketing, and distribution capabilities, the cost and timing of establishing additional technical support capabilities, and the effect of competing technological and market developments. In the future, we may acquire businesses or technologies from third parties, and we may decide to raise additional capital through debt or equity financing to the extent we believe this is necessary to successfully complete these acquisitions.

Off-Balance Sheet Arrangements

As of March 31, 2019, we did not have any off-balance sheet arrangements as defined in Item 303(a)(4) of the Securities and Exchange Commission's Regulation S-K.

Contractual Obligations and Commitments

Our operating lease obligations include a lease for our current headquarters and leases for manufacturing, laboratory, warehousing and office space for our foreign subsidiaries. In the first quarter of 2019, we entered into a lease for a new headquarters in California which is expected to commence in the first quarter of 2020. Please see Note 7 to the financial statements for a discussion of our lease obligations.

Other than as disclosed above, there have been no material changes during the three months ended March 31, 2019 to our contractual obligations disclosed in our "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our annual report on Form 10-K for the year ended December 31, 2018.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of fluctuations in foreign currency exchange rates and interest rates. We do not hold or issue financial instruments for trading purposes.

Foreign Currency Exchange Risk

As we expand internationally, our results of operations and cash flows will become increasingly subject to fluctuations due to changes in foreign currency exchange rates. Our revenue is generally denominated in the local currency of the contracting party. Historically, the majority of our revenue has been denominated in U.S. dollars. Our expenses are generally denominated in the currencies in which our operations are located, which is primarily in the United States, with a portion of expenses incurred in Singapore and Canada where our manufacturing facilities are located. Our results of operations and cash flows are, therefore, subject to fluctuations due to changes in foreign currency exchange rates. The volatility of exchange rates depends on many factors that we cannot forecast with reliable accuracy. We have experienced and will continue to experience fluctuations in our net income or loss as a result of transaction gains or losses related to revaluing certain current asset and current liability balances that are denominated in currencies other than the functional currency of the entities in which they are recorded. For the three months ended March 31, 2019 and 2018, our gains and losses related to changes in foreign exchange rates was less than $0.1 million. To date, we have not entered into any foreign currency hedging contracts although we may do so in the future. As our international operations grow, we will continue to reassess our approach to manage our risk relating to fluctuations in currency rates. If foreign currency exchange rates had changed by 10% during the periods presented, it would not have had a material impact on our financial position or results of operations.

Interest Rate Sensitivity

We had cash, cash equivalents and short-term investments of $75.1 million at March 31, 2019. These amounts were held primarily in cash on deposit with banks, treasury bills and money market funds which are short-term. Cash and cash equivalents and investments are held for working capital purposes. Due to the short-term nature of these investments, we believe that we do not have any material exposure to changes in the fair value of our investment portfolio due to changes in interest rates. Declines in interest rates, however, will reduce future investment income. If overall interest rates had decreased by 10% during the periods presented, our interest income would not have been materially affected.

Fair Value of Financial Instruments

We do not have material exposure to market risk with respect to investments. We do not use derivative financial instruments for speculative or trading purposes. However, we may adopt specific hedging strategies in the future.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2019. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits 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 a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. 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 March 31, 2019, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the three months ended March 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on the Effectiveness of Controls

Control systems, no matter how well conceived and operated, are designed to provide a reasonable, but not an absolute, level of assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. Because of the inherent limitations in any control system, misstatements due to error or fraud may occur and not be detected.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

In the normal course of business, we are from time to time involved in legal proceedings or potential legal proceedings, including matters involving employment, intellectual property, or others. Although the results of litigation and claims cannot be predicted with certainty, we currently believe that the final outcome of any currently pending matters would not have a material adverse effect on our business, operating results, financial condition, or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources, and other factors.

Item 1A. Risk Factors

Set forth below are the risks that we believe are material to our investors. Our risk factors disclosed in Part I, Item 1A, of our annual report on Form 10-K for the year ended December 31, 2018 provide additional disclosure and are incorporated herein by reference.

Risks Related to Fluidigm's Business and Strategy

Our financial results and revenue growth rates have varied significantly from quarter-to-quarter and year-to-year due to a number of factors, and a significant variance in our operating results or rates of growth, if any, could lead to substantial volatility in our stock price.

Our revenue, results of operations, and revenue growth rates have varied in the past and may continue to vary significantly from quarter-to-quarter or year-to-year. We may experience substantial variability in our product mix from period-to-period as revenue from sales of our instruments relative to sales of our consumables may fluctuate or deviate significantly from expectations. For example, our revenue declined year-over-year in 2016 compared to 2015, and in 2017 compared to 2016. In 2018, we returned to revenue growth, but we may not be able to achieve similar revenue growth in future periods. We are also increasingly dependent on our mass cytometry business, which is very capital intensive. Variability in our quarterly or annual results of operations, mix of product revenue, including any decline in our mass cytometry revenue, or variability in rates of revenue growth, if any, may lead to volatility in our stock price as research analysts and investors respond to these fluctuations. These fluctuations are due to numerous factors that are difficult to forecast, including: fluctuations in demand for our products; changes in customer budget cycles and capital spending; seasonal variations in customer operations; tendencies among some customers to defer purchase decisions to the end of the quarter; the large unit value of our systems, particularly our proteomics systems; changes in our pricing and sales policies or the pricing and sales policies of our competitors; our ability to design, manufacture, market, sell, and deliver products to our customers in a timely and cost-effective manner; fluctuations or reductions in revenue from sales of legacy instruments that may have contributed significant revenue in prior periods; quality control or yield problems in our manufacturing operations; our ability to timely obtain adequate quantities of the materials or components used in our products, which in certain cases are purchased through sole and single source suppliers; new product introductions and enhancements by us and our competitors; unanticipated increases in costs or expenses; our complex, variable and, at times, lengthy sales cycle; global economic conditions; and fluctuations in foreign currency exchange rates. Additionally, we have certain customers who have historically placed large orders in multiple quarters during a calendar year. A significant reduction in orders from one or more of these customers could adversely affect our revenue and operating results, and if these customers defer or cancel purchases or otherwise alter their purchasing patterns, our financial results and actual results of operations could be significantly impacted. Other unknown or unpredictable factors also could harm our results.

The foregoing factors, as well as other factors, could materially and adversely affect our quarterly and annual results of operations and rates of revenue growth, if any. We have experienced significant revenue growth in the past but we may not achieve similar growth rates in future periods. You should not rely on our operating results for any prior quarterly or annual period as an indication of our future operating performance. If we are unable to achieve adequate revenue growth, our operating results could suffer and our stock price could decline. In addition, a significant amount of our operating expenses are relatively fixed due to our manufacturing, research and development, and sales and general administrative efforts. Any failure to adjust spending quickly enough to compensate for a shortfall relative to our anticipated revenue could magnify the adverse impact of such shortfalls on our results of operations. We expect that our sales will continue to fluctuate on an annual and quarterly basis and that our financial results for some periods may be below those projected by securities analysts, which could significantly decrease the price of our common stock.

We have incurred losses since inception, and we may continue to incur substantial losses for the foreseeable future.

We have incurred significant losses in each fiscal year since our inception, including net losses of $59.0 million, $60.5 million, and $76.0 million during the years 2018, 2017, and 2016, respectively. As of March 31, 2019, we had an accumulated deficit of $584.3 million. These losses have resulted principally from costs incurred in our research and development programs, and from our manufacturing costs and selling, general, and administrative expenses. To date, we have funded our operations primarily through equity offerings, the issuance of debt instruments, and from sales of our products.

Until we are able to generate additional revenue to support our level of operating expenses, we will continue to incur operating and net losses and negative cash flow from operations. We believe that our continued investment in research and development, sales, and marketing is essential to our long-term competitive position and future revenue growth and, as a result, we may incur operating losses for the foreseeable future and may never achieve profitability.

The life science markets are highly competitive and subject to rapid technological change, and we may not be able to successfully compete.

The markets for our products are characterized by rapidly changing technology, evolving industry standards, changes in customer needs, emerging competition, new product introductions, and strong price competition. We compete with both established and development stage life science research companies that design, manufacture, and market instruments and consumables for gene expression analysis, single-cell targeted gene expression or protein expression analysis, single nucleotide polymorphism genotyping, or SNP genotyping, polymerase chain reaction, or PCR, digital PCR, other nucleic acid detection, flow cytometry, cell imaging, and additional applications using well established laboratory techniques, as well as newer technologies such as bead encoded arrays, microfluidics, nanotechnology, high-throughput DNA sequencing, microdroplets, and photolithographic arrays. Most of our current competitors have significantly greater name recognition, greater financial and human resources, broader product lines and product packages, larger sales forces, larger existing installed bases, larger intellectual property portfolios, and greater experience and scale in research and development, manufacturing, and marketing than we do. For example, companies such as 10X Genomics, Inc., Affymetrix, Inc. (now part of Thermo Fisher Scientific Inc.), Agena Bioscience, Inc., Agilent Technologies, Inc., Becton, Dickinson and Company, Bio-Rad Laboratories, Inc., Cellular Research, Inc. (now a part of Becton, Dickinson and Company), Danaher Corporation, Illumina, Inc., Life Technologies Corporation (now part of Thermo Fisher Scientific Inc.), LGC Limited, Luminex Corporation, Millipore Corporation, NanoString Technologies, Inc., PerkinElmer, Inc. (through its acquisition of Caliper Life Sciences, Inc.), RainDance Technologies, Inc. (acquisition by Bio-Rad Laboratories, Inc. pending), Roche Diagnostics Corporation, Sony Corporation, Thermo Fisher Scientific Inc., WaferGen Bio-systems, Inc., Cytek Biosciences, Inc., Akoya Biosciences, Inc., Innova Biosciences Ltd., QIAGEN N.V., 1CellBio, Inc., Berkeley Lights, Inc., and Mission Bio, Inc. have products that compete in certain segments of the market in which we sell our products. In addition, we have experienced increased competition in the single-cell genomics market, including new product releases from 10X Genomics, Inc. and WaferGen Bio-systems, Inc., as well as the acquisition of Cellular Research by Becton Dickinson and Company and an announced exclusive partnership between Illumina, Inc. and Bio-Rad Laboratories, Inc. In addition, due to the release of our Hyperion imaging mass cytometry system, we now are exposed to competition from companies offering imaging-based systems, specialized reagents and/or services including Carl Zeiss Inc., Leica Biosystems, Nikon Corporation, Olympus America Inc., Roche Diagnostics Corporation, PerkinElmer, Inc., Agilent Technologies, Inc., IonPath Inc., Zellwerk GmbH, Bruker Corporation, Shimadzu Corporation, NanoString Technologies, Inc., and Neogenomics (Multiomyx).

Competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards, or customer requirements. In light of these advantages, even if our technology is more effective than the product or service offerings of our competitors, current or potential customers might accept competitive products and services in lieu of purchasing our technology. We anticipate that we will continue to face increased competition in the future as existing companies and competitors develop new or improved products and as new companies enter the market with new technologies. Increased competition is likely to result in pricing pressures, which could reduce our profit margins and increase our sales and marketing expenses. In addition, mergers, consolidations, or other strategic transactions between two or more of our competitors, or between our competitor and one of our key customers, could change the competitive landscape and weaken our competitive position, adversely affecting our business.

Market opportunities may not develop as quickly as we expect, limiting our ability to successfully sell our products, or our product development and strategic plans may change and our entry into certain markets may be delayed, if it occurs at all.

The application of our technologies to high-throughput genomics, single-cell genomics and, particularly, mass cytometry applications are in many cases emerging market opportunities. We believe these opportunities will take several years to develop or

mature and we cannot be certain that these market opportunities will develop as we expect. The future growth of our markets and the success of our products depend on many factors beyond our control, including recognition and acceptance by the scientific community, and the growth, prevalence, and costs of competing methods of genetic and protein analysis. Additionally, our success depends on the ability of our sales organization to successfully sell our products into these new markets. If we are not able to successfully market and sell our products, or to achieve the revenue or margins we expect, our operating results may be harmed and we may not recover our product development and marketing expenditures. In addition, our product development and strategic plans may change, which could delay or impede our entry into these markets.

If our products fail to achieve and sustain sufficient market acceptance, our revenue will be adversely affected.

Our success depends on our ability to develop and market products that are recognized and accepted as reliable, enabling and cost-effective. Most of our potential customers already use expensive research systems in their laboratories and may be reluctant to replace those systems. Market acceptance of our systems will depend on many factors, including our ability to convince potential customers that our systems are an attractive alternative to existing technologies. Compared to some competing technologies, our technology is relatively new, and most potential customers have limited knowledge of, or experience with, our products. Prior to adopting our systems, some potential customers may need to devote time and effort to testing and validating our systems. Any failure of our systems to meet these customer benchmarks could result in customers choosing to retain their existing systems or to purchase systems other than ours, and revenue from the sale of legacy instruments that may have contributed significant revenue in prior periods may decrease.

In addition, it is important that our systems be perceived as accurate and reliable by the scientific and medical research community as a whole. Historically, a significant part of our sales and marketing efforts has been directed at convincing industry leaders of the advantages of our systems and encouraging such leaders to publish or present the results of their evaluation of our system. If we are unable to continue to induce leading researchers to use our systems, or if such researchers are unable to achieve and publish or present significant experimental results using our systems, acceptance and adoption of our systems will be slowed and our ability to increase our revenue would be adversely affected.

We may experience development or manufacturing problems or delays that could limit the potential growth of our revenue or increase our losses.

We may encounter unforeseen situations in the manufacturing and assembly of our products that would result in delays or shortfalls in our production. For example, our production processes and assembly methods may have to change to accommodate any significant future expansion of our manufacturing capacity, which may increase our manufacturing costs, delay production of our products, reduce our product margin, and adversely impact our business. Conversely, if demand for our products shifts such that a manufacturing facility is operated below its capacity for an extended period, we may adjust our manufacturing operations to reduce fixed costs, which could lead to uncertainty and delays in manufacturing times and quality during any transition period.

Additionally, all of our integrated fluidic circuits (IFCs) for commercial sale are manufactured at our facility in Singapore. Production of the elastomeric block that is at the core of our IFCs is a complex process requiring advanced clean rooms, sophisticated equipment, and strict adherence to procedures. Any contamination of the clean room, equipment malfunction, or failure to strictly follow procedures can significantly reduce our yield in one or more batches. We have in the past experienced variations in yields due to such factors. A drop in yield can increase our cost to manufacture our IFCs or, in more severe cases, require us to halt the manufacture of our IFCs until the problem is resolved. Identifying and resolving the cause of a drop in yield can require substantial time and resources.

Furthermore, developing an IFC for a new application may require developing a specific production process for that type of IFC. While all of our IFCs are produced using the same basic processes, significant variations may be required to ensure adequate yield of any particular type of IFC. Developing such a process can be very time consuming, and any unexpected difficulty in doing so can delay the introduction of a product.

If our manufacturing activities are adversely impacted, or if we are otherwise unable to keep up with demand for our products by successfully manufacturing, assembling, testing, and shipping our products in a timely manner, our revenue could be impaired, market acceptance for our products could be adversely affected and our customers might instead purchase our competitors' products.

If our research and product development efforts do not result in commercially viable products within anticipated timelines, if at all, our business and results of operations will be adversely affected.

Our business is dependent on the improvement of our existing products, our development of new products to serve existing markets, and our development of new products to create new markets and applications that were previously not practical with existing systems. We intend to devote significant personnel and financial resources to research and development activities designed to advance the capabilities of our technology. We have developed design rules for the implementation of our technology that are frequently revised to reflect new insights we have gained about the technology. In addition, we have discovered that biological or chemical reactions sometimes behave differently when implemented on our systems rather than in a standard laboratory environment. Furthermore, many such reactions take place within the confines of single cells, which have also demonstrated unexpected behavior when grown and manipulated within microfluidic environments. As a result, research and development efforts may be required to transfer certain reactions and cell handling techniques to our systems. In the past, product development projects have been significantly delayed when we encountered unanticipated difficulties in implementing a process on our systems. We may have similar delays in the future, and we may not obtain any benefits from our research and development activities. Any delay or failure by us to develop and release new products or product enhancements would have a substantial adverse effect on our business and results of operations.

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

Our systems utilize novel and complex technology and such systems may develop or contain undetected defects or errors. We cannot assure you that material performance problems, defects, or errors will not arise, and as we increase the density and integration of our systems, these risks may increase. We generally provide warranties that our systems will meet performance expectations and will be free from defects. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins. For example, we have experienced a performance issue with respect to certain IFCs used in our C1 systems due to the presence of more than one cell in an IFC chamber. Although we have redesigned such C1 IFCs, we may experience additional unexpected product defects or errors that could affect our ability to adequately address these performance issues.

In manufacturing our products, including our systems, IFCs, and assays, we depend upon third parties for the supply of various components, many of which require a significant degree of technical expertise to produce. In addition, we purchase certain products from third-party suppliers for resale. If our suppliers fail to produce components to specification or provide defective products to us for resale and our quality control tests and procedures fail to detect such errors or defects, or if we or our suppliers use defective materials or workmanship in the manufacturing process, the reliability and performance of our products will be compromised.

If our products contain defects, we may experience:

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

In addition, certain of our products are marketed for use with products sold by third parties. For example, certain of our systems are marketed as compatible with major next-generation DNA sequencing instruments. If such third-party products are not produced to specification, are produced in accordance with modified specifications, or are defective, they may not be compatible with our products. In such case, the reliability and performance of our products may be compromised.

The occurrence of any one or more of the foregoing could negatively affect our business, financial condition, and results of operations.

Our business depends on research and development spending levels of our customers, a reduction in which could limit our ability to sell our products and adversely affect our business.

We expect that our revenue in the foreseeable future will continue to be derived primarily from sales of our systems, IFCs, assays, and reagents to academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories biopharmaceutical, biotechnology, and agricultural biotechnology (Ag-Bio) companies, and contract research organizations worldwide. Our success will depend upon their demand for and use of our products. Accordingly, the spending policies of these customers could have a significant effect on the demand for our technology. These policies may be based on a wide variety of factors, including concerns regarding any future federal government budget sequestrations, the availability of resources to make purchases, the spending priorities among various types of equipment, policies regarding spending during recessionary periods, and changes in the political climate. In addition, academic, governmental, and other research institutions that fund research and development activities may be subject to stringent budgetary constraints that could result in spending reductions, reduced allocations, or budget cutbacks, which could jeopardize the ability of these customers to purchase our products. Our operating results may fluctuate substantially due to reductions and delays in research and development expenditures by these customers. For example, reductions in capital and operating expenditures by these customers may result in lower than expected sales of our systems, IFCs, assays, and reagents. These reductions and delays may result from factors that are not within our control, such as:

- changes in economic conditions;
- natural disasters;
- changes in government programs that provide funding to research institutions and companies;
- changes in the regulatory environment affecting life science and Ag-Bio companies engaged in research and commercial activities;
- differences in budget cycles across various geographies and industries;
- market-driven pressures on companies to consolidate operations and reduce costs;
- mergers and acquisitions in the life science and Ag-Bio industries; and
- other factors affecting research and development spending.

Any decrease in our customers' budgets or expenditures, or in the size, scope, or frequency of capital or operating expenditures, could materially and adversely affect our operations or financial condition.

If one or more of our manufacturing facilities become unavailable or inoperable, we will be unable to continue manufacturing our instruments, IFCs, assays and/or reagents and, as a result, our business will be harmed until we are able to secure a new facility.

We manufacture our genomics analytical and preparatory instruments and IFCs for commercial sale at our facility in Singapore and our mass cytometry instruments for commercial sale at our facility in Canada. Our assays and reagents for commercial sale have been manufactured at our headquarters in the United States, however, we are consolidating our North American production activities into our Canada facility as part of our on-going efforts related to operational excellence and improving efficiencies. No other manufacturing facilities are currently available to us, particularly facilities of the size and scope of our Singapore and Canada operations. Our facilities and the equipment we use to manufacture our instruments, IFCs, assays, and reagents would be costly to replace and could require substantial lead times to repair or replace. Our facilities may be harmed or rendered inoperable by natural or man-made disasters, which may render it difficult or impossible for us to manufacture our products for some period of time. If any of our facilities become unavailable to us, we cannot provide assurances that we will be able to secure a new manufacturing facility on acceptable terms, if at all. The inability to manufacture our products, combined with our limited inventory of manufactured supplies, may result in the loss of customers or harm our reputation, and we may be unable to reestablish relationships with those customers in the future. Although we possess insurance for damage to our property and the disruption of our business, this insurance may not be sufficient to cover all of our potential losses and may not continue to

be available to us on acceptable terms, or at all. If our manufacturing capabilities are impaired, we may not be able to manufacture and ship our products in a timely manner, which would adversely impact our business.

We generate a substantial portion of our revenue internationally and our international business exposes us to business, regulatory, political, operational, financial, and economic risks associated with doing business outside of the United States.

During the years 2018, 2017, and 2016, approximately 57%, 55%, and 49% respectively, of our product and service revenue was generated from sales to customers located outside of the United States. We believe that a significant percentage of our future revenue will continue to come from international sources as we expand our international operations and develop opportunities in other countries. Engaging in international business inherently involves a number of difficulties and risks, including:

- required compliance with existing and changing foreign regulatory requirements and laws that are or may be applicable to our business in the future, such as the European Union's General Data Protection Regulation and other data privacy requirements, labor and employment regulations, anticompetition regulations, the U.K. Bribery Act of 2010 and other anticorruption laws, and the RoHS and WEEE directives, which regulate the use of certain hazardous substances in, and require the collection, reuse, and recycling of waste from, products we manufacture;
- required compliance with U.S. laws such as the Foreign Corrupt Practices Act, and other U.S. federal laws and regulations established by the office of Foreign Asset Control;
- export requirements and import or trade restrictions;
- laws and business practices favoring local companies;
- longer payment cycles and difficulties in enforcing agreements and collecting receivables through certain foreign legal systems;
- changes in social, economic, and political conditions or in laws, regulations and policies governing foreign trade, manufacturing, development, and investment both domestically as well as in the other countries and jurisdictions in which we operate and into which we sell our products, including as a result of the 2016 advisory referendum approving the separation of the United Kingdom from the European Union (Brexit);
- potentially adverse tax consequences, tariffs, customs charges, bureaucratic requirements, and other trade barriers;
- difficulties and costs of staffing and managing foreign operations; and
- difficulties protecting or procuring intellectual property rights.

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

We are subject to fluctuations in the exchange rate of the U.S. Dollar and foreign currencies.

A majority of our product sales are currently denominated in U.S. dollars and fluctuations in the value of the U.S. dollar relative to foreign currencies could decrease demand for our products and adversely impact our financial performance. For example, if the value of the U.S. dollar increases relative to foreign currencies, our products could become more costly to the international consumer and therefore less competitive in international markets, or if the value of the U.S. dollar decreases relative to the Singapore dollar or the Canadian dollar, it would become more costly in U.S. dollars for us to manufacture our products in Singapore and/or in Canada. Additionally, our expenses are generally denominated in the currencies of the countries in which our operations are located, which is primarily in the United States, with a portion of expenses incurred in Singapore and Canada where a significant portion of our manufacturing operations are located. Our results of operations and cash flows are, therefore, subject to fluctuations due to changes in foreign currency exchange rates. The volatility of exchange rates depends on many factors that we cannot forecast with reliable accuracy. We have experienced and will continue to experience fluctuations in our net income or loss as a result of transaction gains or losses related to revaluing certain current asset and current liability balances that are denominated in currencies other than the functional currency of the entities in which they are recorded. Fluctuations in currency exchange rates could have an adverse impact on our financial results in the future.

Any disruption or delay in the shipping or off-loading of our products, whether domestically or internationally, may have an adverse effect on our financial condition and results of operations.

We rely on shipping providers to deliver products to our customers globally. Labor, tariff, or World Trade Organization-related disputes, piracy, physical damage to shipping facilities or equipment caused by severe weather or terrorist incidents, congestion at shipping facilities, inadequate equipment to load, dock, and offload our products, energy-related tie-ups, or other factors could disrupt or delay shipping or off-loading of our products domestically and internationally. Such disruptions or delays may have an adverse effect on our financial condition and results of operations.

We are dependent on single and sole source suppliers for some of the components and materials used in our products, and the loss of any of these suppliers could harm our business.

We rely on single and sole source suppliers for certain components and materials used in our products. Additionally, several of our instruments are assembled at the facilities of contract manufacturers in Singapore. We do not have long term contracts with our suppliers of these components and materials or our assembly service providers. The loss of a single or sole source supplier of any of the following components and/or materials would require significant time and effort to locate and qualify an alternative source of supply, if at all:

- The IFCs used in our microfluidic systems are fabricated using a specialized polymer, and other specialized materials, that are available from a limited number of sources. In the past, we have encountered quality issues that have reduced our manufacturing yield or required the use of additional manufacturing processes.
- The electron multiplier detector included in the Hyperion/Helios systems and certain metal isotopes used with the Hyperion/Helios systems are purchased from sole source suppliers.
- The raw materials for our Delta Gene and SNP Type assays and Access Array target-specific primers are available from a limited number of sources.

Our reliance on single and sole source suppliers and assembly service providers also subjects us to other risks that could harm our business, including the following:

- we may be subject to increased component or assembly costs and
- we may not be able to obtain adequate supply or services in a timely manner or on commercially reasonable terms.

We have in the past experienced quality control and supply problems with some of our suppliers, such as manufacturing errors, and may again experience problems in the future. We may not be able to quickly establish additional or replacement suppliers, particularly for our single source components, or assembly service providers. Any interruption or delay in the supply of components or materials or assembly of our instruments, or our inability to obtain components, materials, or assembly services from alternate sources at acceptable prices in a timely manner, could impair our ability to meet the demand of our customers and cause them to cancel orders or switch to competitive products.

Our future success is dependent upon our ability to expand our customer base and introduce new applications.

Our customer base is primarily composed of academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, biopharmaceutical, biotechnology, and Ag-Bio companies, and contract research organizations that perform analyses for research and commercial purposes. Our success will depend, in part, upon our ability to increase our market share among these customers, attract additional customers outside of these markets, and market new applications to existing and new customers as we develop such applications. Attracting new customers and introducing new applications require substantial time and expense. For example, it may be difficult to identify, engage, and market to customers who are unfamiliar with the current applications of our systems. Any failure to expand our existing customer base or launch new applications would adversely affect our ability to increase our revenue.

We may not be able to develop new products or enhance the capabilities of our existing systems to keep pace with rapidly changing technology and customer requirements, which could have a material adverse effect on our business, revenue, financial condition, and operating results.

Our success depends on our ability to develop new products and applications for our technology in existing and new markets, while improving the performance and cost-effectiveness of our systems. New technologies, techniques, or products

could emerge that might offer better combinations of price and performance than our current or future product lines and systems. Existing markets for our products, including high-throughput genomics, single-cell genomics and mass cytometry, as well as potential markets for our products such as high-throughput DNA sequencing and molecular applications, are characterized by rapid technological change and innovation. It is critical to our success for us to anticipate changes in technology and customer requirements and to successfully introduce new, enhanced, and competitive technology to meet our customers' and prospective customers' needs on a timely and cost-effective basis. Developing and implementing new technologies will require us to incur substantial development costs and we may not have adequate resources available to be able to successfully introduce new applications of, or enhancements to, our systems. We cannot guarantee that we will be able to maintain technological advantages over emerging technologies in the future. While we typically plan improvements to our systems, we may not be able to successfully implement these improvements. If we fail to keep pace with emerging technologies, demand for our systems will not grow and may decline, and our business, revenue, financial condition, and operating results could suffer materially. In addition, if we introduce enhanced systems but fail to manage product transitions effectively, customers may delay or forgo purchases of our systems and our operating results may be adversely affected by product obsolescence and excess inventory. Even if we successfully implement some or all of these planned improvements, we cannot guarantee that our current and potential customers will find our enhanced systems to be an attractive alternative to existing technologies, including our current products.

Our business operations depend upon the continuing efforts of our management team and other skilled and experienced personnel, and if we are unable to retain them or to recruit and train new key executives, scientists, and technical support personnel, we may be unable to achieve our goals.

Our success depends largely on the skills, experience, and performance of key members of our management team and key scientific and technical support personnel. The loss of the services of any key member of our management team or our scientific or technical support staff might significantly delay or prevent the development of our products or achievement of other business objectives by diverting management's attention to transition matters and identification of suitable replacements, if any, and could have a material adverse effect on our business. Our research and product development efforts could also be delayed or curtailed if we are unable to attract, train, and retain highly skilled employees, particularly, senior scientists and engineers. We do not maintain fixed term employment contracts or significant key man life insurance with any of our employees.

Additionally, to expand our research and product development efforts, we need to retain and recruit key scientists skilled in areas such as molecular and cellular biology, assay development, and manufacturing. We also need highly trained technical support personnel with the necessary scientific background and ability to understand our systems at a technical level to effectively support potential new customers and the expanding needs of current customers. Competition for these people is intense and we may face challenges in retaining and recruiting such individuals if, for example, our stock price declines, reducing the retention value of equity awards, or our business or technology is no longer perceived as leading in our field. Because of the complex and technical nature of our systems and the dynamic market in which we compete, any failure to attract and retain a sufficient number of qualified employees could materially harm our ability to develop and commercialize our technology.

Our business growth strategy involves the potential for significant acquisitions, and our operating results and prospects could be harmed if we are unable to integrate future acquisitions successfully.

We may acquire other businesses to improve our product offerings or expand into new markets. Our future acquisition strategy will depend on our ability to identify, negotiate, complete, and integrate acquisitions and, if necessary, to obtain satisfactory debt or equity financing to fund those acquisitions. Mergers and acquisitions are inherently risky, and any transaction we complete may not be successful. Any merger or acquisition we may pursue would involve numerous risks, including but not limited to the following:

- difficulties in integrating and managing the operations, technologies, and products of the companies we acquire;
- diversion of our management's attention from normal daily operation of our business;
- our inability to maintain the key business relationships and the reputations of the businesses we acquire;
- our inability to retain key personnel of the acquired company;
- uncertainty of entry into markets in which we have limited or no prior experience and in which competitors have stronger market positions;
- our dependence on unfamiliar affiliates and customers of the companies we acquire;

- insufficient revenue to offset our increased expenses associated with acquisitions;
- our responsibility for the liabilities of the businesses we acquire, including those which we may not anticipate; and
- our inability to maintain internal standards, controls, procedures, and policies.

We may be unable to secure the equity or debt funding necessary to finance future acquisitions on terms that are acceptable to us. If we finance acquisitions by issuing equity or convertible debt securities, our existing stockholders will likely experience dilution, and if we finance future acquisitions with debt funding, we will incur interest expense and may have to comply with financial covenants and secure that debt obligation with our assets.

Security breaches, loss of data, cyberattacks, and other information technology failures could disrupt our operations, damage our reputation, and adversely affect our business, operations, and financial results.

We are dependent upon our data and information technology systems for the effective operation of our business and for the secure maintenance and storage of confidential data relating to our business and third-party businesses. Our information technology systems may be damaged, disrupted or shut down due to attacks by experienced programmers or hackers who may be able to penetrate our security controls and deploy computer viruses, cyberattacks, phishing schemes, or other malicious software programs, or due to employee error or malfeasance, power outages, hardware failures, telecommunication or utility failures, catastrophes or other unforeseen events, and our system redundancy and other disaster recovery planning may be ineffective or inadequate in preventing or responding to any of these circumstances. Any such compromise of our information technology systems could result in the unauthorized publication of our confidential business or proprietary information and unauthorized release of customer, supplier or employee data, any of which could expose us to a risk of legal claims or proceedings, liability under privacy or other laws, disruption of our operations and damage to our reputation, which could divert our management's attention from the operation of our business and materially and adversely affect our business, revenues and competitive position. In addition, our liability insurance may not be sufficient in type or amount to cover us against claims related to security breaches, cyberattacks and other related breaches. The cost and operational consequences of implementing further data protection measures, either as a response to specific breaches or as a result of evolving risks, could be significant. In addition, our inability to use or access our information systems at critical points in time could adversely affect the timely and efficient operation of our business. Any delayed sales, significant costs or lost customers resulting from these technology failures could adversely affect our business, operations, and financial results.

We have implemented security controls to protect our information technology infrastructure but, despite our efforts, we are not fully insulated from technology disruptions that could adversely impact us. For example, in early March 2019, we experienced a ransomware attack that infiltrated and encrypted certain of our information technology systems, including systems containing critical business data. Immediately following the attack, actions were taken to recover the compromised systems and we believe we were able to restore their operation without significant loss of business data. Based on the nature of the attack and its impact on our systems, we do not believe confidential data was lost or disclosed, but we are continuing to monitor the situation. If confidential data is later determined to have been released in the course of this event, it is possible that we could be the subject of actions by governmental authorities or claims from persons alleging they suffered damages from such a release. As of the date of this filing, we estimate the costs associated with the intrusion to be approximately $1.5 million; we have recovered a portion of these costs under an applicable insurance policy and will continue to seek reimbursement for additional eligible expenses. Although we believe we have now contained the disruption, we anticipate additional work and expense in the future as we continue to respond to the attack and further enhance our security processes and initiatives.

In addition to risks affecting our own systems, we could also be negatively impacted by a data breach or cyber incident happening to a third party's network and affecting us. Third parties with which we conduct business have access to certain portions of our sensitive data, including information pertaining to our customers and employees. In the event that these third parties do not adequately safeguard our data, security breaches could result and negatively impact our business, operations, and financial results.

Our efficiency and cost-savings initiatives could be disruptive to our operations and adversely affect our results of operations and financial condition, and we may not realize some or all of the anticipated benefits of these initiatives in the time frame anticipated or at all.

Since 2017, we have been implementing efficiency and cost-savings initiatives intended to stabilize our business operations and return to growth. These efficiency initiatives have included targeted workforce reductions, optimizing our facilities, and reducing excess space. Further actions such as these may be required on an ongoing basis to optimize our organization. For

example, we may need to decrease or defer capital expenditures and development activities or implement further operating expense reduction measures. The implementation of these efficiency and cost-savings initiatives could impair our ability to invest in developing, marketing and selling new and existing products, be disruptive to our operations, make it difficult to attract or retain employees, result in higher than anticipated charges, divert the attention of management, result in a loss of accumulated knowledge, impact our customer and supplier relationships, and otherwise adversely affect our results of operations and financial condition. In addition, our ability to complete our efficiency and cost-savings initiatives and achieve the anticipated benefits within the expected time frame is subject to estimates and assumptions and may vary materially from our expectations, including as a result of factors that are beyond our control. Furthermore, our efforts to grow our business and become profitable may not be successful.

To use our products, our Biomark, EP1, and Helios/CyTOF 2 systems in particular, customers typically need to purchase specialized reagents. Any interruption in the availability of these reagents for use in our products could limit our ability to market our products.

Our products, our Biomark, EP1, and Helios systems in particular, must be used in conjunction with one or more reagents designed to produce or facilitate the particular biological or chemical reaction desired by the user. Many of these reagents are highly specialized and available to the user only from a single supplier or a limited number of suppliers. Although we sell reagents for use with certain of our products, our customers may purchase these reagents directly from third-party suppliers, and we have no control over the supply of those materials. In addition, our products are designed to work with these reagents as they are currently formulated. We have no control over the formulation of reagents sold by third-party suppliers, and the performance of our products might be adversely affected if the formulation of these reagents is changed. If one or more of these reagents were to become unavailable or were reformulated, our ability to market and sell our products could be materially and adversely affected.

In addition, the use of a reagent for a particular process may be covered by one or more patents relating to the reagent itself, the use of the reagent for the particular process, the performance of that process, or the equipment required to perform the process. Typically, reagent suppliers, who are either the patent holders or their authorized licensees, sell the reagents along with a license or covenant not to sue with respect to such patents. The license accompanying the sale of a reagent often purports to restrict the purposes for which the reagent may be used. If a patent holder or authorized licensee were to assert against us or our customers that the license or covenant relating to a reagent precluded its use with our systems, our ability to sell and market our products could be materially and adversely affected. For example, our Biomark system involves real-time quantitative polymerase chain reaction (qPCR) technology. Leading suppliers of reagents for real-time qPCR reactions include Life Technologies Corporation (now part of Thermo Fisher Scientific) and Roche Diagnostics Corporation, who are our direct competitors, and their licensees. These real-time qPCR reagents are typically sold pursuant to limited licenses or covenants not to sue with respect to patents held by these companies. We do not have any contractual supply agreements for these real-time qPCR reagents, and we cannot assure you that these reagents will continue to be available to our customers for use with our systems, or that these patent holders will not seek to enforce their patents against us, our customers, or suppliers.

If we seek to be regulated as a medical device manufacturer by the U.S. Food and Drug Administration and foreign regulatory authorities, and seek approval and/or clearance for our products, the regulatory approval process would take significant time and expense and could fail to result in FDA clearance or approval for the intended uses we believe are commercially attractive. If our products were successfully approved and/or cleared, we would be subject to ongoing and extensive regulatory requirements, which would increase our costs and divert resources away from other projects. If we obtained FDA clearance or approval and we failed to comply with these requirements, our business and financial condition could be adversely impacted.

Our products are currently labeled, promoted and sold to academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, contract research organizations, and biopharmaceutical, biotechnology, and Ag-Bio companies “for research use only” (RUO), and are not designed, or intended to be used, for clinical diagnostic tests or as medical devices as currently marketed. Before we can begin to label and market our products for use as, or in the performance of, clinical diagnostics in the United States, thereby subjecting them to FDA regulation as medical devices, we would be required to obtain premarket 510(k) clearance or premarket approval from the FDA, unless an exception applies.

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

reporting, promotional restrictions, reporting adverse events or malfunctions for our products, and general prohibitions against misbranding and adulteration.

In addition, we may in the future submit 510(k) premarket notifications to the FDA to obtain FDA clearance of certain of our products on a selected basis. It is possible, in the event we elect to submit 510(k) applications for certain of our products, that the FDA would take the position that a more burdensome premarket application, such as a premarket approval application or a de novo application is required for some of our products. If such applications were required, greater time and investment would be required to obtain FDA approval. Even if the FDA agreed that a 510(k) was appropriate, FDA clearance can be expensive and time consuming. It generally takes a significant amount of time to prepare a 510(k), including conducting appropriate testing on our products, and several months to years for the FDA to review a submission. Notwithstanding the effort and expense, FDA clearance or approval could be denied for some or all of our products. Even if we were to seek and obtain regulatory approval or clearance, it may not be for the intended uses we believe are important or commercially attractive.

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

In addition, we could decide to seek similar regulatory clearance or approval for certain of our products in countries outside of the United States. Sales of such products outside the United States will likely be subject to foreign regulatory requirements, which can vary greatly from country to country. As a result, the time required to obtain clearances or approvals outside the United States may differ from that required to obtain FDA clearance or approval and we may not be able to obtain foreign regulatory approvals on a timely basis or at all. Clearance or approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other countries or by the FDA. In Europe, we would need to comply with the Medical Device Directive 93/42 EEC and/or the In Vitro Diagnostics Directive 98/79/EC, which are required to market medical devices in the European Union. These directives are being replaced by Medical Device Regulation 2017/745 and In Vitro Diagnostic Regulation 2017/746, with official entry into force in May 26, 2017 and date of applications of May 26, 2020 and May 26, 2022 respectively. This will increase the difficulty of regulatory approvals in Europe in the future. In addition, the FDA regulates exports of medical devices. Failure to comply with these regulatory requirements or obtain and maintain required approvals, clearances and certifications could impair our ability to commercialize our products for diagnostic use outside of the United States.

Our products could become subject to regulation as medical devices by the FDA or other regulatory agencies before we have obtained regulatory clearance or approval to market our products for diagnostic purposes, which would adversely impact our ability to market and sell our products and harm our business.

As products that are currently labeled, promoted and intended "for research use only" (RUO), our products are not currently subject to regulation as medical devices by the FDA or comparable agencies of other countries. However, the FDA or comparable agencies of other countries could disagree with our conclusion that our products are currently intended for research use only or deem our current sales, marketing and promotional efforts as being inconsistent with research use only products. For example, our customers may independently elect to use our research use only labeled products in their own laboratory developed tests (LDTs) for clinical diagnostic use. The FDA has historically exercised enforcement discretion in not enforcing the medical device regulations against laboratories offering LDTs. However, on October 3, 2014, the FDA issued two draft guidance documents that set forth the FDA's proposed risk-based framework for regulating LDTs, which are designed, manufactured, and used within a single laboratory. The draft guidance documents provide the anticipated details through which the FDA would propose to establish an LDT oversight framework, including premarket review for higher-risk LDTs, such as those that have the same intended use as FDA-approved or cleared companion diagnostic tests currently on the market. In January 2017, the FDA announced that it would not issue final guidance on the oversight of LDTs and LDT manufacturers, but would seek further public discussion on an appropriate oversight approach, and give Congress an opportunity to develop a legislative solution. Any future legislative or administrative rule making or oversight of LDTs and LDT manufacturers, if and when finalized, may impact the sales of our products and how customers use our products, and may require us to change our business model in order to maintain compliance with these laws. We cannot predict how these various efforts will be resolved, how Congress or the FDA will regulate LDTs in the future, or how that regulatory system will impact our business.

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

If the FDA modifies its approach to our products labeled and intended as RUO, or otherwise determines our products or related applications should be subject to additional regulation as in vitro diagnostic devices based upon customers' use of our products for clinical diagnostic or therapeutic purposes, before we have obtained regulatory clearance or approval to market our products for diagnostic purposes, our ability to market and sell our products could be impeded and our business, prospects, results of operations and financial condition may be adversely affected. In addition, if the FDA determines that our products labeled as RUO were intended, based on a review of the totality of circumstances, for use in clinical investigation or diagnosis, those products could be considered misbranded or adulterated under the Federal Food, Drug, and Cosmetic Act and subject to recall and/or other enforcement action.

Compliance or the failure to comply with current and future regulations affecting our products and business operations worldwide, such as environmental regulations enacted in the European Union, could cause us significant expense and adversely impact our business.

We are subject to many federal, state, local, and foreign regulations relating to various aspects of our business operations. Governmental entities at all levels are continuously enacting new regulations, and it is difficult to identify all applicable regulations and anticipate how such regulations will be implemented and enforced. We continue to evaluate the necessary steps for compliance with applicable regulations. To comply with applicable regulations, we have and will continue to incur significant expense and allocate valuable internal resources to manage compliance-related issues. In addition, such regulations could restrict our ability to expand or equip our facilities, or could require us to acquire costly equipment or to incur other significant expenses to comply with the regulations. For example, the Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive, or RoHS, and the Waste Electrical and Electronic Equipment Directive, or WEEE, enacted in the European Union, regulate the use of certain hazardous substances in, and require the collection, reuse, and recycling of waste from, products we manufacture. Certain of our products sold in these countries are subject to WEEE and RoHS. These and similar regulations that have been or are in the process of being enacted in other countries may require us to redesign our products, use different types of materials in certain components, or source alternative components to ensure compliance with applicable standards, and may reduce the availability of parts and components used in our products by negatively impacting our suppliers' ability to source parts and components in a timely and cost-effective manner.

Any such redesigns, required use of alternative materials, or limited availability of parts and components used in our products may detrimentally impact the performance of our products, add greater testing lead times for product introductions, reduce our product margins, or limit the markets for our products, and if we fail to comply with any present and future regulations, we could be subject to future fines, penalties, and restrictions, such as the suspension of manufacturing of our products or a prohibition on the sale of products we manufacture. Any of the foregoing could adversely affect our business, financial condition, or results of operations.

If we fail to maintain effective internal control over financial reporting in the future, the accuracy and timing of our financial reporting may be impaired, which could adversely affect our business and our stock price.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. Our testing may reveal deficiencies in our internal control over financial reporting that are deemed to be material weaknesses.

Our compliance with Section 404 requires that we incur substantial accounting expense and expend significant management time on compliance-related issues. We currently do not have an internal audit group, and we continue to evaluate our need for additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. Moreover, if we do not comply with the requirements of Section 404, or if we or our independent registered public accounting firm identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market

price of our stock could decline and we could be subject to sanctions or investigations by the Nasdaq Global Select Market (Nasdaq), the SEC, or other regulatory authorities, which would require additional financial and management resources.

Impairment of our goodwill or other intangible assets could materially and adversely affect our business, operating results, and financial condition.

As of December 31, 2018, we had approximately $165.9 million of goodwill and net intangible assets, including approximately $104.1 million of goodwill and $61.8 million of net intangible assets. These assets represent a significant portion of the assets recorded on our consolidated balance sheet and relate primarily to our acquisition of DVS Sciences, Inc., or DVS, in February 2014. In addition, if in the future we acquire additional businesses, technologies, or other intangible assets, a substantial portion of the value of such assets may be recorded as goodwill or intangible assets.

The carrying amounts of goodwill and intangible assets are affected whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. We review goodwill and indefinite lived intangible assets for impairment at least annually and more frequently under certain circumstances. Other intangible assets that are deemed to have finite useful lives will continue to be amortized over their useful lives but must be reviewed for impairment when events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. Events or changes in circumstances that could affect the likelihood that we will be required to recognize an impairment charge include declines in our stock price or market capitalization, declines in our market share or revenues, an increase in our losses, rapid changes in technology, failure to achieve the benefits of capacity increases and utilization, significant litigation arising out of an acquisition, or other matters. In particular, these or other adverse events or changes in circumstances may affect the estimated undiscounted future operating cash flows expected to be derived from our goodwill and intangible assets. Any impairment charges could have a material adverse effect on our operating results and net asset value in the quarter in which we recognize the impairment charge. We cannot provide assurances that we will not in the future be required to recognize impairment charges.

Our future capital needs are uncertain and we may need to raise additional funds in the future, which may cause dilution to stockholders or may be upon terms that are not favorable to us.

We believe that our existing cash and cash equivalents and availability under the Revolving Credit Facility will be sufficient to meet our anticipated cash requirements for at least the next 18 months. We have continued to experience losses and, if that trend continues, we may need to seek additional sources of financing. In addition, we may need to raise substantial additional capital for various purposes, including:

- expanding the commercialization of our products;
- funding our operations;
- furthering our research and development; and
- acquiring other businesses or assets and licensing technologies.

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

- market acceptance of our products;
- the cost of our research and development activities;
- the cost of filing and prosecuting patent applications;
- the cost of defending any litigation including intellectual property, employment, contractual or other litigation;
- the cost and timing of regulatory clearances or approvals, if any;
- the cost and timing of establishing additional sales, marketing, and distribution capabilities;
- the cost and timing of establishing additional technical support capabilities;
- fluctuations in cash demands (e.g., due to interest payments or payouts under existing cash compensation plans);
- variability in sales and timing of related cash collections;
- the effectiveness of our recent efficiency and cost-savings initiatives;
- the effect of competing technological and market developments; and
- the extent to which we acquire or invest in businesses, products, and technologies, although we currently have no commitments or agreements relating to any of these types of transactions.

To the extent we draw on our $15.0 million revolving senior credit facility (the "2018 Facility") or otherwise incur additional indebtedness, the risks described above could increase. Further, if we increase our indebtedness, our actual cash requirements in the future may be greater than expected. Our cash flow from operations may not be sufficient to repay all of the outstanding debt as it becomes due, and we cannot assure you that we will be able to obtain additional funds on acceptable terms, or at all. If we raise additional funds by issuing equity securities, our stockholders may experience dilution. Debt financing in addition to the 2018 Facility, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any additional debt or equity financing that we raise may contain terms that are not favorable to us or our stockholders. If we raise additional funds through collaboration and licensing arrangements with third parties, it may be necessary to relinquish some rights to our technologies or our products, or grant licenses on terms that are not favorable to us. If we do not have or are unable to raise adequate funds, we may have to liquidate some or all of our assets, delay development or commercialization of our products, or license to third parties the rights to commercialize products or technologies that we would otherwise seek to commercialize. We also may have to reduce marketing, customer support, research and development, or other resources devoted to our products, or cease operations. Any of these factors could harm our operating results.

If we fail to comply with the covenants and other obligations under our credit facility, the lenders may be able to accelerate amounts owed under the facilities and may foreclose upon the assets securing our obligations.

In August 2018, we entered into the Revolving Credit Facility. The Revolving Credit Facility provides for secured revolving loans in an aggregate amount of up to $15.0 million. The Revolving Credit Facility is secured by substantially all of our assets, other than intellectual property. The Revolving Credit Facility contains customary affirmative and negative covenants which, unless waived by the bank, limit our ability to, among other things, incur additional indebtedness, grant liens, make investments, repurchase stock, pay dividends, transfer assets, enter into affiliate transactions, undergo a change of control, or engage in merger and acquisition activity, including merging or consolidating with a third party. If we fail to comply with the covenants and our other obligations under the 2018 Facility, the lenders would be able to accelerate the required repayment of amounts due under the 2018 Credit Agreement and, if they are not repaid, could foreclose upon the assets securing our obligations under the 2018 Facility.

We are subject to risks related to taxation in multiple jurisdictions and if taxing authorities disagree with our interpretations of existing tax laws or regulations, our effective income tax rate could be adversely affected and we could have additional tax liability.

We are subject to income taxes in both the United States and certain foreign jurisdictions. Significant judgments based on interpretations of existing tax laws or regulations are required in determining the provision for income taxes. For example, we have made certain interpretations of existing tax laws or regulations based upon the operations of our business internationally and we have implemented intercompany agreements based upon these interpretations and related transfer pricing analyses. If the U.S. Internal Revenue Service or other taxing authorities disagree with the positions, our effective income tax rate could be adversely affected and we could have additional tax liability, including interest and penalties. We recently completed a review of our European corporate structure and tax positions and, based upon our existing business operations, we restructured our European intercompany transactions, which increased our income tax liability. From time to time, we may review our corporate structure and tax positions in other international jurisdictions and such review may result in additional changes to how we structure our international business operations, which may adversely impact our effective income tax rate. Our effective income tax rate could also be adversely affected by changes in the mix of earnings in tax jurisdictions with different statutory tax rates, changes in the valuation of deferred tax assets and liabilities, changes in existing tax laws or tax rates, changes in the level of non-deductible expenses (including share-based compensation), changes in our future levels of research and development spending, mergers and acquisitions, or the result of examinations by various tax authorities. Legislation commonly referred to as the 2017 Tax Cuts and Jobs Act was enacted in the United States on December 22, 2017 and introduced a number of changes to U.S. federal income tax, the consequences to us of which have not yet been fully determined and which could have material impact on the value of our deferred tax assets, could result in significant one-time charges in the current or future taxable years, and could increase our future U.S. tax expense. Payment of additional amounts as a result of changes in applicable tax law or upon final adjudication of any disputes could have a material impact on our results of operations and financial position.

Our ability to use net operating loss carryforwards to offset future taxable income for U.S. federal income tax purposes and other tax benefits may be limited.

Section 382 of the Internal Revenue Code of 1986, as amended, referred to as the "Code," imposes an annual limitation on the amount of taxable income that may be offset if a corporation experiences an "ownership change" as defined in Section 382 of the Code. An ownership change occurs when a company's "five-percent shareholders" (as defined in Section 382 of the Code)

collectively increase their ownership in the company by more than 50 percentage points (by value) over a rolling three-year period. Additionally, various states have similar limitations on the use of state net operating losses, referred to as our NOLs, following an ownership change.

If we experience an ownership change, our ability to use our NOLs, any loss or deduction attributable to a "net unrealized built-in loss" and other tax attributes, which we refer to as tax benefits, could be substantially limited, and the timing of the usage of the tax benefits could be substantially delayed, which could significantly impair the value of the tax benefits. There is no assurance that we will be able to fully utilize the tax benefits and we could be required to record an additional valuation allowance related to the amount of the tax benefits that may not be realized, which could adversely impact our results of operations.

We believe that these tax benefits are a valuable asset for us. However, legislation commonly known as the 2017 Tax Cuts and Jobs Act includes a decrease in the U.S. federal corporate income tax rate from 35% to 21%, and our tax benefits were revalued at the newly enacted rate. We do not expect this to have a material impact on our financial statements because we currently maintain a full valuation allowance on our U.S. deferred tax assets; however, this reduction in the U.S. federal corporate income tax rate results in a corresponding reduction in the value of our tax benefits. On November 21, 2016, our board of directors approved a tax benefit preservation plan, or Tax Benefit Preservation Plan, in an effort to protect our tax benefits during the effective period of the tax benefit preservation plan. Our board of directors elected to let the Tax Benefit Preservation Plan expire in August 2017 based on its determination, in consultation with our management and tax advisors, that our NOLs were not at material risk of limitation based on an ownership change pursuant to Section 382. Our board of directors will continue to monitor our NOLs, however, and could elect to adopt a similar plan if it believes a potential risk exists that our NOLs could be limited. Any future tax benefit preservation plan could make it more difficult for a third party to acquire, or could discourage a third party from acquiring, us or a large block of our common stock.

Adverse conditions in the global economy and disruption of financial markets may significantly harm our revenue, profitability, and results of operations.

The global credit and financial markets have in recent years experienced volatility and disruptions, including diminished liquidity and credit availability, increased concerns about inflation and deflation, and the downgrade of U.S. debt and exposure risks on other sovereign debts, decreased consumer confidence, lower economic growth, volatile energy costs, increased unemployment rates, and uncertainty about economic stability. In addition, certain geopolitical events, including the prolonged shutdown of the United States government and the ongoing negotiation of the United Kingdom's withdrawal from the European Union, have caused significant economic, market, political and regulatory uncertainty in some of our markets. Volatility and disruption of financial markets could limit our customers' ability to obtain adequate financing or credit to purchase and pay for our products in a timely manner or to maintain operations, which could result in a decrease in sales volume that could harm our results of operations. General concerns about the fundamental soundness of domestic and international economies may also cause our customers to reduce their purchases. Changes in governmental banking, monetary, and fiscal policies to address liquidity and increase credit availability may not be effective. Significant government investment and allocation of resources to assist the economic recovery of sectors which do not include our customers may reduce the resources available for government grants and related funding for life science, Ag-Bio, and clinical research and development. Continuation or further deterioration of these financial and macroeconomic conditions could significantly harm our sales, profitability, and results of operations.

If we are unable to expand our direct sales and marketing force or distribution capabilities to adequately address our customers' needs, our business may be adversely affected.

We may not be able to market, sell, and, distribute our products effectively enough to support our planned growth. We sell our products primarily through our own sales force and through distributors in certain territories. Our future sales will depend in large part on our ability to continue to develop and substantially expand our direct sales force and to increase the scope of our marketing efforts. Our products are technically complex and used for highly specialized applications. As a result, we believe it is necessary to continue to develop a direct sales force that includes people with specific scientific backgrounds and expertise, and a marketing group with technical sophistication. Competition for such employees is intense. In addition, we have experienced significant changes in our sales organization in recent quarters due to reorganizations and changes in leadership. We may not be able to attract and retain personnel or be able to build an efficient and effective sales and marketing force, which would negatively impact sales of our products and reduce our revenue and profitability.

In addition, we may continue to enlist one or more sales representatives and distributors to assist with sales, distribution, and customer support globally or in certain regions of the world. If we do seek to enter into such arrangements, we may not be successful in attracting desirable sales representatives and distributors, or we may not be able to enter into such arrangements on favorable terms. If our sales and marketing efforts, or those of any third-party sales representatives and distributors, are not

successful, our technologies and products may not gain market acceptance, which would materially and adversely impact our business operations.

If we seek to implement a company-wide enterprise resource planning (ERP) system, such implementation could adversely affect our business and results of operations or the effectiveness of internal control over financial reporting.

We have considered implementing a company-wide ERP system to handle the business and financial processes within our operations and corporate functions. ERP implementations are complex and time-consuming projects that involve substantial expenditures on system software and implementation activities that can continue for several years. ERP implementations also require transformation of business and financial processes in order to reap the benefits of the ERP system. If we decide to implement a company-wide ERP system, our business and results of operations could be adversely affected if we experience operating problems and/or cost overruns during the ERP implementation process, or if the ERP system and the associated process changes do not give rise to the benefits that we expect. If we do not effectively implement the ERP system as planned or if the system does not operate as intended, our business, results of operations, and internal controls over financial reporting could be adversely affected.

Changes in accounting principles, or interpretations thereof, could have a significant impact on our financial position and results of operations.

We prepare our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, referred to as U.S. GAAP. These principles are subject to interpretation by the SEC and various bodies formed to interpret and create appropriate accounting principles. A change in these principles can have a significant effect on our reported results and may even retroactively affect previously reported transactions. Additionally, the adoption of new or revised accounting principles may require that we make significant changes to our systems, processes and controls.

For example, the U.S.-based Financial Accounting Standards Board (FASB) is currently working together with the International Accounting Standards Board, referred to IASB, on several projects to further align accounting principles and facilitate more comparable financial reporting between companies who are required to follow U.S. GAAP under SEC regulations and those who are required to follow International Financial Reporting Standards outside of the United States. These efforts by the FASB and IASB may result in different accounting principles under U.S. GAAP that may result in materially different financial results for us in areas including, but not limited to, principles for recognizing revenue and lease accounting. Additionally, significant changes to U.S. GAAP resulting from the FASB's and IASB's efforts may require that we change how we process, analyze and report financial information and that we change financial reporting controls. Additionally, the FASB issued new guidance (ASU 2014-09) *Revenue from Contracts with Customers (Topic 606)* which supersedes nearly all existing U.S. GAAP revenue recognition guidance. The new guidance was effective for our fiscal year 2018. We adopted ASU 2014-09 in the first quarter of 2018 using the modified retrospective method. Under the modified retrospective method, periods prior to the adoption of ASU 2014-09 are not restated and the cumulative effect of initially applying the new standard is reflected in the opening balance of retained earnings as of January 1, 2018. To date, the adoption has not had a material impact on our consolidated financial statements. Additional disclosures are required for significant differences between the reported results under the new standard and those that would have been reported under the legacy standard, which required us to make certain changes to our business processes and controls to support revenue recognition and disclosure under the new standard.

The FASB also issued Accounting Standards Update (ASU) 2016-02, *Leases (Topic 842)*. The core principle is that lessees should recognize the assets and liabilities arising from leases on the balance sheet. Under the new standard, lessees will be required to recognize lease assets and liabilities for all leases, with certain exceptions, on their balance sheets. We adopted ASU 2016-02 as of January 1, 2019. The adoption of this standard had a material impact on our consolidated financial statements. We continue to identify the appropriate changes to our business processes, systems, and controls to support the new lease standard and the required disclosures under the new standard.

It is not clear if or when these and other potential changes in accounting principles may become effective, whether we have the proper systems and controls in place to accommodate such changes and the impact that any such changes may have on our financial position and results of operations.

We have a significant amount of outstanding indebtedness, and our financial condition and results of operations could be adversely affected if we do not efficiently manage our liabilities.

We have significant outstanding convertible debt, and may be required to repay, refinance or restructure a portion of such debt before 2021. As of March 31, 2019, we had outstanding $51.3 million aggregate principal amount of our 2014 Notes. The

2014 Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the 2014 Notes. Holders of the 2014 Notes may require us to repurchase all or a portion of their 2014 Notes on each of February 6, 2021, February 6, 2024, and February 6, 2029 at a repurchase price in cash equal to 100% of the principal amount of the Notes plus accrued and unpaid interest. If we undergo a fundamental change, as defined in the terms of each of the applicable series of Notes, holders of the 2014 Notes may require us to repurchase the 2014 Notes in whole or in part for cash at a repurchase price equal to 100% of the principal amount of the 2014 Notes plus accrued and unpaid interest. If we refinance the debt owed under the 2014 Notes, we may issue additional convertible notes or other debt, which could include additional company obligations and represent more dilution to existing stockholders and noteholders.

This significant amount of debt has important risks to us and our investors, including:

- requiring a portion of our cash flow from operations to make interest payments on this debt;
- increasing our vulnerability to general adverse economic and industry conditions;
- reducing the cash flow available to fund capital expenditures and other corporate purposes and to grow our business;
- limiting our flexibility in planning for, or reacting to, changes in our business and the industry; and
- limiting our ability to borrow additional funds as needed or take advantage of business opportunities as they arise.

In addition, to the extent we draw on our Revolving Credit Facility or otherwise incur additional indebtedness, the risks described above could increase. Further, if we increase our indebtedness, our actual cash requirements in the future may be greater than expected. Our cash flow from operations may not be sufficient to repay all of the outstanding debt as it becomes due, and we may not be able to borrow money, sell assets or otherwise raise funds on acceptable terms, or at all, to refinance our debt.

Risks Related to Intellectual Property

Our ability to protect our intellectual property and proprietary technology through patents and other means is uncertain.

Our commercial success depends in part on our ability to protect our intellectual property and proprietary technologies. We rely on patent protection, where appropriate and available, as well as a combination of copyright, trade secret, and trademark laws, and nondisclosure, confidentiality, and other contractual restrictions to protect our proprietary technology. However, these legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. We apply for patents covering our products and technologies and uses thereof, as we deem appropriate. However, we may fail to apply for patents on important products and technologies in a timely fashion or at all. Our pending U.S. and foreign patent applications may not issue as patents or may not issue in a form that will be sufficient to protect our proprietary technology and gain or keep our competitive advantage. Any patents we have obtained or do obtain may be subject to re-examination, reissue, opposition, or other administrative proceeding, or may be challenged in litigation, and such challenges could result in a determination that the patent is invalid or unenforceable. In addition, competitors may be able to design alternative methods or devices that avoid infringement of our patents. Both the patent application process and the process of managing patent disputes can be time consuming and expensive.

Furthermore, the laws of some foreign countries may not protect our intellectual property rights to the same extent as do the laws of the United States, and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business. Changes in either the patent laws or in interpretations of patent laws in the United States or other countries may diminish the value of our intellectual property. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. For example:

- We might not have been the first to make the inventions covered by each of our pending patent applications;
- We might not have been the first to file patent applications for these inventions;
- The patents of others may have an adverse effect on our business; and
- Others may independently develop similar or alternative products and technologies or duplicate any of our products and technologies.

To the extent our intellectual property, including licensed intellectual property, offers inadequate protection, or is found to be invalid or unenforceable, our competitive position and our business could be adversely affected.

We may be involved in lawsuits to protect or enforce our patents and proprietary rights, to determine the scope, coverage and validity of others' proprietary rights, or to defend against third party claims of intellectual property infringement, any of which could be time-intensive and costly and may adversely impact our business or stock price.

Litigation may be necessary for us to enforce our patent and proprietary rights, determine the scope, coverage, and validity of others' proprietary rights, and/or defend against third party claims of intellectual property infringement against us as well as against our suppliers, distributors, customers, and other entities with whom we do business. Litigation could result in substantial legal fees and could adversely affect the scope of our patent protection. The outcome of any litigation or other proceeding is inherently uncertain and might not be favorable to us, and we might not be able to obtain licenses to technology that we require. Even if such licenses are obtainable, they may not be available at a reasonable cost. We could therefore incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our product margins or financial position. Further, we could encounter delays in product introductions, or interruptions in product sales, as we develop alternative methods or products.

As we move into new markets and applications for our products, incumbent participants in such markets may assert their patents and other proprietary rights against us as a means of impeding our entry into such markets or as a means to extract substantial license and royalty payments from us. Our commercial success may depend in part on our non-infringement of the patents or proprietary rights of third parties. Numerous significant intellectual property issues have been litigated, and will likely continue to be litigated, between existing and new participants in our existing and targeted markets. For example, some of our products provide for the testing and analysis of genetic material, and patent rights relating to genetic materials remain a developing area of patent law. A recent U.S. Supreme Court decision held, among other things, that claims to isolated genomic DNA occurring in nature are not patent eligible, while claims relating to synthetic DNA may be patent eligible. We expect the ruling will result in additional litigation in our industry. In addition, third parties may assert that we are employing their proprietary technology without authorization, and if they are successful in making such claims, we may be forced to enter into license agreements, pay additional royalties or license fees, or enter into settlements that include monetary obligations or restrictions on our business.

Our customers have been sued for various claims of intellectual property infringement in the past, and we expect that our customers will be involved in additional litigation in the future. In particular, our customers may become subject to lawsuits claiming that their use of our products infringes third-party patent rights, and we could become subject to claims that we contributed to or induced our customer's infringement. In addition, our agreements with some of our suppliers, distributors, customers, and other entities with whom we do business may require us to defend or indemnify these parties to the extent they become involved in infringement claims against us, including the claims described above. We could also voluntarily agree to defend or indemnify third parties in instances where we are not obligated to do so if we determine it would be important to our business relationships. If we are required or agree to defend or indemnify any of these third parties in connection with any infringement claims, we could incur significant costs and expenses that could adversely affect our business, operating results, or financial condition.

We may be subject to damages resulting from claims that we or our employees have wrongfully used or disclosed alleged trade secrets of our employees' former employers or other institutions or third parties with whom such employees may have been previously affiliated.

Many of our employees were previously employed at universities or other life science or Ag-Bio companies, including our competitors or potential competitors. In the future, we may become subject to claims that our employees, or we, have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers or other third parties or institutions with whom our employees may have been previously affiliated. Litigation may be necessary to defend against these claims. For example, we were a defendant in litigation brought against us and one of our non-executive employees by Thermo Fisher Scientific Inc. (Thermo) alleging, among other claims, misappropriation of proprietary information and breach of contractual and fiduciary obligations. While we resolved our dispute with Thermo in July 2017, if we fail in defending against similar claims brought in the future we could be subject to injunctive relief against us. A loss of key research personnel work product could hamper or prevent our ability to commercialize certain potential products or a loss of or inability to hire key marketing, sales or research and development personnel could adversely affect our future product development, sales and revenues, any of which could severely harm our business. Even if we are successful in defending against any similar claims brought in the future, litigation could result in substantial costs and be a distraction to management.

We depend on certain technologies that are licensed to us. We do not control these technologies and any loss of our rights to them could prevent us from selling our products, which would have an adverse effect on our business.

We rely on licenses in order to be able to use various proprietary technologies that are material to our business, including our core IFC, multi-layer soft lithography, and mass cytometry technologies. In some cases, we do not control the prosecution, maintenance, or filing of the patents to which we hold licenses, or the enforcement of these patents against third parties. Additionally, our business and product development plans anticipate and may substantially depend on future in-license agreements with additional third parties, some of which are currently in the early discussion phase. For example, Fluidigm Canada Inc., or Fluidigm Canada, an Ontario corporation and wholly owned subsidiary of Fluidigm Sciences, was party to an interim license agreement, now expired, with Nodality, Inc., or Nodality, under which Nodality granted Fluidigm Canada a worldwide, non-exclusive, research use only, royalty bearing license to certain cytometric reagents, instruments, and other products. While we were able to secure a license under a new license agreement with Nodality, we cannot provide assurances that we will always be able to obtain suitable license rights to technologies or intellectual property of other third parties on acceptable terms, if at all.

In-licensed intellectual property rights that are fundamental to the business being operated present numerous risks and limitations. For example, all or a portion of the license rights granted may be limited for research use only, and in the event we attempt to expand into diagnostic applications, we would be required to negotiate additional rights, which may not be available to us on commercially reasonable terms, if at all.

Our rights to use the technology we license are also subject to the negotiation and continuation of those licenses. Certain of our licenses contain provisions that allow the licensor to terminate the license upon specific conditions. Our rights under the licenses are subject to our continued compliance with the terms of the license, including the payment of royalties due under the license. Because of the complexity of our products and the patents we have licensed, determining the scope of the license and related royalty obligation can be difficult and can lead to disputes between us and the licensor. An unfavorable resolution of such a dispute could lead to an increase in the royalties payable pursuant to the license. If a licensor believed we were not paying the royalties due under the license or were otherwise not in compliance with the terms of the license, the licensor might attempt to revoke the license. If such an attempt were successful and the license is terminated, we might be barred from marketing, producing, and selling some or all of our products, which would have an adverse effect on our business. Potential disputes between us and one of our existing licensors concerning the terms or conditions of the applicable license agreement could result, among other risks, in substantial management distraction; increased expenses associated with litigation or efforts to resolve disputes; substantial customer uncertainty concerning the direction of our product lines; potential infringement claims against us and/or our customers, which could include efforts by a licensor to enjoin sales of our products; customer requests for indemnification by us; and, in the event of an adverse determination, our inability to operate our business as currently operated. Termination of material license agreements could prevent us from manufacturing and selling our products unless we can negotiate new license terms or develop or acquire alternative intellectual property rights that cover or enable similar functionality. Any of these factors would be expected to have a material adverse effect on our business, operating results, and financial condition and could result in a substantial decline in our stock price.

We are subject to certain manufacturing restrictions related to licensed technologies that were developed with the financial assistance of U.S. governmental grants.

We are subject to certain U.S. government regulations because we have licensed technologies that were developed with U.S. government grants. In accordance with these regulations, these licenses provide that products embodying the technologies are subject to domestic manufacturing requirements. If this domestic manufacturing requirement is not met, the government agency that funded the relevant grant is entitled to exercise specified rights, referred to as “march-in rights,” which if exercised would allow the government agency to require the licensors or us to grant a non-exclusive, partially exclusive, or exclusive license in any field of use to a third party designated by such agency. All of our microfluidic systems revenue is dependent upon the availability of our IFCs, which incorporate technology developed with U.S. government grants. Our genomics instruments, including microfluidic systems, and IFCs are manufactured at our facility in Singapore. The federal regulations allow the funding government agency to grant, at the request of the licensors of such technology, a waiver of the domestic manufacturing requirement. Waivers may be requested prior to any government notification. We have assisted the licensors of these technologies with the analysis of the domestic manufacturing requirement, and, in December 2008, the sole licensor subject to the requirement applied for a waiver of the domestic manufacturing requirement with respect to the relevant patents licensed to us by this licensor. In July 2009, the funding government agency granted the requested waiver of the domestic manufacturing requirement for a three-year period commencing in July 2009. In June 2012, the licensor requested a continued waiver of the domestic manufacturing requirement with respect to the relevant patents, but the government agency has not yet taken any action in response to this request. If the government agency does not grant the requested waiver or the government fails to grant additional

waivers of such requirement that may be sought in the future, then the U.S. government could exercise its march-in rights with respect to the relevant patents licensed to us. In addition, the license agreement under which the relevant patents are licensed to us contains provisions that obligate us to comply with this domestic manufacturing requirement. We are not currently manufacturing instruments and IFCs in the United States that incorporate the relevant licensed technology. If our lack of compliance with this provision constituted a material breach of the license agreement, the license of the relevant patents could be terminated or we could be compelled to relocate our manufacturing of microfluidic systems and IFCs to the United States to avoid or cure a material breach of the license agreement. Any of the exercise of march-in rights, the termination of our license of the relevant patents or the relocation of our manufacturing of microfluidic systems and IFCs to the United States could materially adversely affect our business, operations and financial condition.

We are subject to certain obligations and restrictions relating to technologies developed in cooperation with Canadian government agencies.

Some of our Canadian research and development is funded in part through government grants and by government agencies. The intellectual property developed through these projects is subject to rights and restrictions in favor of government agencies and Canadians generally. In most cases the government agency retains the right to use intellectual property developed through the project for non-commercial purposes and to publish the results of research conducted in connection with the project. This may increase the risk of public disclosure of information relating to our intellectual property, including confidential information, and may reduce its competitive advantage in commercializing intellectual property developed through these projects. In certain projects, we have also agreed to use commercially reasonable efforts to commercialize intellectual property in Canada, or more specifically in the province of Ontario, for the economic benefit of Canada and the province of Ontario. These restrictions will limit our choice of business and manufacturing locations, business partners and corporate structure and may, in certain circumstances, restrict our ability to achieve maximum profitability and cost efficiency from the intellectual property generated by these projects. In one instance, a dispute with the applicable government funded entity may require mediation, which could lead to unanticipated delays in our commercialization efforts to that project. One of our Canadian government funded projects is also subject to certain limited “march-in” rights in favor of the government of the Province of Ontario, under which we may be required to grant a license to our intellectual property, including background intellectual property developed outside the scope of the project, to a responsible applicant on reasonable terms in circumstances where the government determines that such a license is necessary in order to alleviate emergency or extraordinary health or safety needs or for public use. In addition, we must provide reasonable assistance to the government in obtaining similar licenses from third parties required in connection with the use of its intellectual property. Instances in which the government of the Province of Ontario has exercised similar “march-in” rights are rare; however, the exercise of such rights could materially adversely affect our business, operations and financial condition.

Item 5. Other Information

None.

Item 6. Exhibits

The documents listed in the Exhibit List, which follows below, are incorporated by reference or are filed with this quarterly report on Form 10-Q, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

EXHIBIT LIST

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.1	Lease between AP3-SF3 CT North, LLC and Fluidigm Corporation, dated March 20, 2019.	Filed herewith		
10.2	First Amendment to Lease between AP3-SF3 CT North, LLC and Fluidigm Corporation, dated April 26, 2019.	Filed herewith		
31.1	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 of Chief Executive Officer.	Filed herewith		
31.2	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 of Chief Financial Officer.	Filed herewith		
32.1(1)	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 of Chief Executive Officer.	Furnished herewith		
32.2(1)	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 of Chief Financial Officer.	Furnished herewith		
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.	Filed herewith		
101.SCH	XBRL Taxonomy Extension Schema Document	Filed herewith		
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	Filed herewith		
101.LAB	XBRL Taxonomy Extension Label Linkbase Document	Filed herewith		
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document	Filed herewith		
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	Filed herewith		

(1) In accordance with Item 601(b)(32)(ii) of Regulation S-K and SEC Release No. 33-8238 and 34-47986, Final Rule: Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports, the certifications furnished in Exhibits 32.1 and 32.2 hereto are deemed to accompany this Form 10-Q and will not be deemed "filed" for purposes of Section 18 of the Exchange Act. Such certifications will not be deemed to be incorporated by reference into any filings under the Securities Act or the Exchange Act, except to the extent that the registrant specifically incorporates it by reference.

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.

FLUIDIGM CORPORATION

Dated: May 7, 2019

By: /s/ Stephen Christopher Linthwaite
Stephen Christopher Linthwaite
President and Chief Executive Officer

Dated: May 7, 2019

By: /s/ Vikram Jog
Vikram Jog
Chief Financial Officer

Exhibit 10.1

TWO TOWER PLACE

LEASE

AP3-SF3 CT NORTH, LLC,
a Delaware limited liability company

as Landlord,

and

FLUIDIGM CORPORATION,
a Delaware corporation

as Tenant

SUMMARY OF BASIC LEASE INFORMATION

This Summary of Basic Lease Information ("**Summary**") is hereby incorporated into and made a part of the attached Lease. Each reference in the Lease to any term of this Summary shall have the meaning as set forth in this Summary for such term. In the event of a conflict between the terms of this Summary and the Lease, the terms of the Lease shall prevail. Any capitalized terms used herein and not otherwise defined herein shall have the meaning as set forth in the Lease.

TERMS OF LEASE (References are to the Lease)	**DESCRIPTION**
1. Date:	March 20, 2019
2. Landlord:	AP3-SF3 CT NORTH, LLC, a Delaware limited liability company
3. Address of Landlord (Section 24.19):	For notices to Landlord: AP3-SF3 CT North, LLC 4380 La Jolla Village Drive, Suite 230 San Diego, CA 92122 Attention: W. Neil Fox, CEO with a copy to: Allen Matkins Leck Gamble Mallory & Natsis LLP 600 West Broadway, 27th Floor San Diego, California 92101 Attention: Martin L. Togni, Esq. For payment of Rent only: AP3-SF3 CT North LLC Dept. LA 24537 Pasadena, CA 91185-4537
4. Tenant:	FLUIDIGM CORPORATION, a Delaware corporation
5. Address of Tenant (Section 24.1 9):	7000 Shoreline Court, Suite 100 South San Francisco, CA 94080 Attention: General Counsel (Prior to Lease Commencement Date) and Two Tower Place, Suite 2100 South San Francisco, CA 94080 Attention: General Counsel (After Lease Commencement Date)
6. Premises (Article 1):	
6.1 Premises:	67,746 rentable square feet of space located on a portion of the eighteenth (18^{th}) floor of the Building and the entirety of the nineteenth (19^{th}), twentieth (20^{th}) and twenty-first (21^{st}) floors of the Building (as defined below), as depicted on **Exhibit A** attached hereto.
6.2 Building:	The Premises are located in the building whose address is Two Tower Place, South San Francisco, California (the "**Building**").
7. Term (Article 2):	
7.1 Lease Term:	Ten (10) years and three (3) months.

TERMS OF LEASE
(References are to the Lease) **DESCRIPTION**

7.2 Lease Commencement Date:	The later of (i) January 17, 2020 or (ii) the date the Premises are Ready for Occupancy (as defined in the Tenant Work Letter attached hereto as **Exhibit B**), which Lease Commencement Date is anticipated to be January 17, 2020.
7.3 Lease Expiration Date:	The last day of the month in which the one hundred twenty-third (123rd) monthly anniversary of the Lease Commencement Date occurs.

8. Base Rent (Article 3):

Lease Period	Annual Base Rent*	Monthly Installment of Base Rent*	Monthly Rental Rate per Rentable Square Foot*
***1 – 8	$2,617,260.80	$327,157.60	$5.60
9 – 12	$4,552,531.20	$379,377.60	$5.60
13 – 24	$4,711,869.84	$392,655.82	$5.80**
25 – 36	$4,876,785.24	$406,398.77	$6.00 **
37 – 48	$5,047,472.76	$420,622.73	$6.21 **
49 – 60	$5,224,134.36	$435,344.53	$6.43 **
61 – 72	$5,406,979.08	$450,581.59	$6.65 **
73 – 84	$5,596,223.40	$466,351.95	$6.88 **
85 – 96	$5,792,091.24	$482,674.27	$7.12 **
97 – 108	$5,994,814.44	$499,567.87	$7.37 **
109 – 120	$6,204,633.00	$517,052.75	$7.63 **
121 – 123	$6,421,795.20	$535,149.60	$7.90 **

*The initial monthly installment of Base Rent amount was calculated by multiplying the initial monthly Base Rent rate per rentable square foot amount by the number of rentable square feet of space in the Premises, and the annual Base Rent amount was calculated by multiplying the initial monthly installment of Base Rent amount by twelve (12). In all subsequent Base Rent payment periods during the Lease Term commencing on the first (1st) day of the full calendar month that is Lease month 13, the calculation of each monthly installment of Base Rent amount reflects an annual increase of three and one-half percent (3-1/2%) and each annual Base Rent amount was calculated by multiplying the corresponding monthly installment of Base Rent amount by twelve (12).

**The amount identified in the column entitled "Monthly Rental Rate per Rentable Square Foot" are rounded amounts provided for informational purposes only.

***Subject to abatement as provided in Article 3 below. The Base Rent for this eight (8) month period is calculated based on 58,421 rentable square feet in the Premises notwithstanding that Tenant is leasing the entire Premises (consisting of 67,746 rentable square feet); provided, however, that Tenant shall pay Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs based on 67,746 rentable square feet in the Premises for the entire Lease Term.

9. Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs (Section 4.2.6):	18.09% (67,746 rentable square feet within the Premises/374,433 rentable square feet within the Building).
10. Letter of Credit (Article 20):	$2,000,000.00
11. Brokers (Section 24.25):	Newmark Cornish & Carey representing Landlord, and Savills Studley representing Tenant.
12. Parking (Article 23):	Total of two hundred three (203) unreserved parking spaces.

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EXHIBITS:

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LEASE

This Lease, which includes the preceding Summary and the exhibits attached hereto and incorporated herein by this reference (the Lease, the Summary and the exhibits to be known sometimes collectively hereafter as the "**Lease**"), dated as of the date set forth in Section 1 of the Summary, is made by and between AP3-SF3 CT NORTH, LLC, a Delaware limited liability company ("**Landlord**"), and FLUIDIGM CORPORATION, a Delaware corporation ("**Tenant**").

ARTICLE 1

PROJECT, BUILDING AND PREMISES

1.1 Project, Building and Premises.

1.1.1 Premises. Upon and subject to the terms, covenants and conditions hereinafter set forth in this Lease, Landlord hereby leases to Tenant and Tenant hereby leases from Landlord the premises described in Section 6.1 of the Summary (the "**Premises**"), which Premises are located in the Building (as defined in Section 6.2 of the Summary) and located within the Project (as defined below). The floor plans of the Premises is attached hereto as **Exhibit A**.

1.1.2 Building and Project. The Building consists of twenty-one (21) floors with a total of 374,433 rentable square feet and is part of a multi-building commercial project known as "Genesis South San Francisco", located on 8.4 acres of land in the City of South San Francisco. The term "Project" as used in this Lease, shall mean, collectively: (i) the Building; (ii) the other existing building located at One Tower Place within the site which is not owned by Landlord (the "**Other Existing Building**"); (iii) any outside plaza areas, walkways, driveways, courtyards, public and private streets, transportation facilitation areas and other improvements and facilities now or hereafter constructed surrounding and/or servicing the Building and/or the Other Existing Building, which are designated from time to time by Landlord (and/or any other owners of the Project) as common areas appurtenant to or servicing the Building, and any such other improvements; (iv) any additional buildings, improvements, facilities and common areas which Landlord (any other owners of the Project and/or any common area association formed by Landlord, Landlord's predecessor-in-interest and/or Landlord's assignee for the Project) may add thereto from time to time within or as part of the Project; and (v) the land upon which any of the foregoing are situated. The site plan depicting the current configuration of the Project is attached hereto as **Exhibit A-1.** The Building, as well as the Other Existing Building, is served by a parking facility located at Three Tower Place ("**Parking Facility**"). Notwithstanding the foregoing or anything contained in this Lease to the contrary, (1) Landlord has no obligation to expand or otherwise make any improvements within the Project, including, without limitation, any of the outside plaza areas, walkways, driveways, courtyards, public and private streets, transportation facilitation areas and other improvements and facilities which may be depicted on **Exhibit A-1** attached hereto (as the same may be modified by Landlord (and/or any other owners of the Project) from time to time without notice to Tenant), other than Landlord's obligations (if any) specifically set forth in the Tenant Work Letter attached hereto as **Exhibit B**, and (2) Landlord (and/or any other owners of the Project) shall have the right from time to time to include or exclude any improvements or facilities within the Project, at such party's sole election, as more particularly set forth in Section 1.1.3 below.

1.1.3 Tenant's and Landlord's Rights. Tenant shall have the right to the nonexclusive use of the common corridors and hallways, stairwells, elevators (if any), restrooms and other public or common areas located within the Building, and the non-exclusive use of those areas located on the Project that are designated by Landlord (and/or any other owners of the Project) from time to time as common areas for the Building; provided, however, that (i) Tenant's use thereof shall be subject to (A) the provisions of any covenants, conditions and restrictions regarding the use thereof now or hereafter recorded against the Project, and (B) such reasonable, non-discriminatory rules and regulations as Landlord may make from time to time (which shall be provided in writing to Tenant), and (ii) Tenant may not go on the roof of Building or the Other Existing Building without Landlord's prior consent (which may be withheld in Landlord's sole and absolute (but good faith) discretion) and without otherwise being accompanied by a representative of Landlord. Landlord (and/or any other owners of the Project) reserves the right from time to time to use any of the common areas of the Project, and the roof, risers and conduits of the Building and the Other Existing Building for telecommunications and/or any other purposes, and to do any of the following, so long as the same does not unreasonably interfere with Tenant's use of or access to the Premises or Tenant's parking rights and does not materially increase the obligations or materially decrease the rights of Tenant under this Lease: (1) make any changes, additions, improvements, repairs and/or replacements in or to the Project or any portion or elements thereof, including, without limitation,

(x) changes in the location, size, shape and number of driveways, entrances, loading and unloading areas, ingress, egress, direction of traffic, landscaped areas, walkways, public and private streets, plazas, courtyards, transportation facilitation areas and common areas, and (y) expanding or decreasing the size of the Project and any common areas and other elements thereof, including adding, deleting and/or excluding buildings (including the Other Existing Building) thereon and therefrom; (2) close temporarily any of the common areas while engaged in making repairs, improvements or alterations to the Project; (3) retain and/or form a common area association or associations under covenants, conditions and restrictions to own, manage, operate, maintain, repair and/or replace all or any portion of the landscaping, driveways, walkways, public and private streets, plazas, courtyards, transportation facilitation areas and/or other common areas located outside of the Building and the Other Existing Building and, subject to Article 4 below, include the common area assessments, fees and taxes charged by the association(s) and the cost of maintaining, managing, administering and operating the association(s), in Operating Expenses or Tax Expenses; and (4) perform such other acts and make such other changes with respect to the Project as Landlord may, in the exercise of good faith business judgment, deem to be appropriate.

1.2 Condition of Premises. Except as expressly set forth in this Lease and in the Tenant Work Letter, Landlord shall not be obligated to provide or pay for any improvement, remodeling or refurbishment work or services related to the improvement, remodeling or refurbishment of the Premises, and Tenant shall accept the Premises in its "As Is" condition on the Lease Commencement Date; provided, however, in the event that, during the first twelve (12) months of the Lease Term, the Base, Shell and Core of the Building and Tenant Improvements (as defined in Section 1 of **Exhibit B)** which includes the Systems and Equipment, the base building HVAC, plumbing, life safety and electrical systems of the Building as well as the roof and roof membrane, in its condition existing as of such date (A) does not comply with applicable laws, seismic, fire and life safety codes, and the ADA, in effect as of the date hereof, or (B) contains defects, then Landlord shall be responsible, at its sole cost and expense which shall not be included in Operating Expenses (except as otherwise permitted in Section 4.2 hereof), for correcting any such non-compliance to the extent required by applicable laws, and/or correcting any such defects as soon as reasonably possible after receiving notice thereof from Tenant. Notwithstanding the foregoing, if Tenant fails to give Landlord written notice of any such defects described in clause (B) hereinabove within twelve (12) months after the Lease Commencement Date, then the correction of any such defects shall, subject to Landlord's repair obligations in Section 7.2 hereof (and to the extent such correction is a responsibility of Tenant pursuant to Section 7.1 hereof), be Tenant's responsibility at Tenant's sole cost and expense. Tenant also acknowledges that, except as otherwise expressly set forth in this Lease, neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the Premises, the Building, or the Project or their condition, or with respect to the suitability thereof for the conduct of Tenant's business (including, but not limited to, any zoning/conditional use permit requirements which shall be Tenant's responsibility and Tenant's failure to obtain any such zoning/use permits (if any are required) shall not affect Tenant's obligations under this Lease). Subject to Landlord's delivery obligations hereunder, the taking of possession of the Premises by Tenant shall conclusively establish that the Premises (including the Tenant Improvements therein), the Building and the Project were at such time complete and in good, sanitary and satisfactory condition and without any obligation on Landlord's part to make any alterations, upgrades or improvements thereto. For purposes of Section 1938(a) of the California Civil Code, Landlord hereby discloses to Tenant, and Tenant hereby acknowledges, that the Premises have not undergone inspection by a Certified Access Specialist (CASp). In addition, the following notice is hereby provided pursuant to Section 1938(e) of the California Civil Code:

> "A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises."

In furtherance of and in connection with such notice: (i) Tenant, having read such notice and understanding Tenant's right to request and obtain a CASp inspection and with advice of counsel, hereby elects not to obtain such CASp inspection and waives its rights to obtain a CASp inspection with respect to the Premises, Building and/or Project to the extent permitted by applicable laws now or hereafter in effect; and (ii) if the waiver set forth in clause (i) hereinabove is not enforceable pursuant to applicable laws, then Landlord and Tenant hereby agree as follows (which constitute the mutual agreement of the parties as to the matters described in the last sentence of the foregoing notice): (A) Tenant shall have the one-time right to request for and obtain a CASp inspection, which request must be made, if at all, in a written

notice delivered by Tenant to Landlord on or before that date which is ten (10) days after the date hereof; (B) any CASp inspection timely requested by Tenant shall be conducted (1) between the hours of 9:00 a.m. and 5:00 p.m. on any business day, (2) only after ten (10) days' prior written notice to Landlord of the date of such CASp inspection, (3) in a professional manner by a CASp designated by Landlord and without any testing that would damage the Premises, Building or Project in any way, and (4) at Tenant's sole cost and expense, including, without limitation, Tenant's payment of the fee for such CASp inspection, the fee for any reports prepared by the CASp in connection with such CASp inspection (collectively, the "**CASp Reports**") and all other costs and expenses in connection therewith; (C) Tenant shall deliver a copy of any CASp Reports to Landlord within three (3) business days after Tenant's receipt thereof; (D) Tenant, at its sole cost and expense, shall be responsible for making any legally required improvements, alterations, modifications and/or repairs to or within the Premises to correct violations of construction-related accessibility standards including, without limitation, any violations disclosed by such CASp inspection ordered by Tenant; and (E) if such CASp inspection ordered by Tenant identifies any improvements, alterations, modifications and/or repairs necessary to correct violations of construction-related accessibility standards relating to those items of the Building and Project located outside the Premises that are Landlord's obligation to repair under the Lease (as amended hereby), then Landlord shall perform such improvements, alterations, modifications and/or repairs as and to the extent required by applicable laws to correct such violations, and Tenant shall reimburse Landlord for the cost of such improvements, alterations, modifications and/or repairs within ten (10) business days after Tenant's receipt of an invoice therefor from Landlord.

1.3 Rentable Square Feet. The rentable square feet of the Premises is approximately as set forth in Section 6.1 of the Summary. Such square footage figure shall be binding on Landlord and Tenant for the entire Lease Term absent a casualty or condemnation that affects the actual size of the Premises or an actual change in the size of the Building or the Project. In any such event, the rentable square feet of the Premises and the Building shall be calculated by Landlord using a commercially reasonable measurement method that is substantially consistent with then industry custom and practice.

1.4 Right of First Refusal. Commencing as of the date hereof and continuing until the last day of the twenty-fourth (24th) month anniversary of the Lease Commencement Date ("**Initial Right of First Refusal Period**"), Tenant shall have an ongoing (subject to the terms hereof) right of first refusal with respect to space located on the eighteenth (18th) floor of the Building (the "**First Refusal Space**"). After such Initial Right of First Refusal Period, Tenant's right of first refusal shall be a one-time right of first refusal. Notwithstanding the foregoing (i) the lease term for Tenant's lease of the First Refusal Space pursuant to Tenant's exercise of such first refusal right of Tenant shall commence only following the expiration or earlier termination of any existing lease pertaining to the First Refusal Space, including any renewal or extension of any such existing lease, whether or not such renewal or extension is pursuant to an express written provision in such lease, and regardless of whether any such renewal or extension is consummated pursuant to a lease amendment or a new lease, and (ii) such first refusal right shall be subordinate and secondary to all currently existing rights of expansion, first refusal, first offer or similar rights granted to (x) the tenant of any such existing lease and (y) any other tenant of the Project as of the date hereof (the rights described in items (i) and (ii), above to be known collectively as "**ROFR Superior Rights**"). Tenant's right of first refusal shall be on the terms and conditions set forth in this Section 1.4. As of the date of this Lease, Landlord acknowledges and agrees that no ROFR Superior Rights exist.

1.4.1 Procedure for Refusal. Landlord shall notify Tenant (the "**First Refusal Notice**") when Landlord receives a bona fide offer from a prospective third party tenant that Landlord is willing to accept for the First Refusal Space and/or when Landlord intends to submit a bona fide counteroffer which Landlord would be willing to accept and the prospective third party tenant would accept (in each case where no holder of a ROFR Superior Right desires to lease such space). The economic terms and conditions of Tenant's lease of such First Refusal Space shall be as provided in Landlord's First Refusal Notice ("**First Refusal Economic Terms**").

1.4.2 Procedure for Acceptance. If Tenant wishes to exercise Tenant's right of first refusal with respect to the space described in the First Refusal Notice, then within five (5) business days after delivery of the First Refusal Notice to Tenant ("**Election Date**"), Tenant shall deliver an unconditional, irrevocable notice to Landlord of Tenant's exercise of its right of first refusal with respect to the entire space described in the First Refusal Notice and on the First Refusal Economic Terms contained therein. If Tenant does not exercise its right of first refusal within the applicable time period (on all of the First Refusal Economic Terms), then Landlord shall be free to lease the space described in the First Refusal Notice to anyone to whom Landlord desires on any terms Landlord desires; provided, however, that if Landlord intends to enter into a lease upon First Refusal Economic Terms which are, in the aggregate, materially more favorable to a prospective tenant than those First Refusal Economic Terms proposed by Landlord in the

First Refusal Notice to Tenant, then Landlord shall first deliver written notice to Tenant ("**Second Chance Notice**") providing Tenant with the opportunity to lease the First Refusal Space on such more favorable First Refusal Economic Terms (such more favorable terms in the Second Chance Notice are referred to herein as the "**Second Chance Economic Terms**"). For purposes hereof, Second Chance Economic Terms shall be materially more favorable to a third party if such Second Chance Economic Terms reflect a net effective rental rate (including any rent abatement and tenant improvement costs/allowance and any other economic concessions) less than ninety-five percent (95%) of the net effective rental rate for such First Refusal Space as the First Refusal Economic Terms initially proposed by Landlord in the First Refusal Notice. Tenant's failure to elect to lease the First Refusal Space upon such Second Chance Economic Terms by written notice to Landlord within five (5) business days after Tenant's receipt of such Second Chance Notice from Landlord shall be deemed to constitute Tenant's election not to lease such space upon such Second Chance Economic Terms, in which case Landlord shall be entitled to lease such space to any third (3rd) party on any terms Landlord desires, subject to Landlord's obligation to deliver Tenant a further Second Chance Notice under the circumstances set forth in the preceding two (2) sentences. Except as otherwise provided above, Tenant's right of first refusal shall continue in full force and effect during the Initial First Right of Refusal Period. After the expiration of the Initial First Right of Refusal Period, Tenant's right of first refusal shall be a one-time right (and in the event Tenant does not exercise a right of first refusal after the expiration of the Initial First Right of Refusal Period, then this Section 1.4 shall thereafter be deemed null and void and of no further force or effect, subject to Landlord's obligation to deliver a Second Chance Notice as described above). Notwithstanding anything to the contrary contained herein, Tenant must elect to exercise its right of first refusal, if at all, with respect to all of the space comprising the First Refusal Space offered by Landlord to Tenant at any particular time, and Tenant may not elect to lease only a portion thereof or object to any of the First Refusal Economic Terms.

1.4.3 Construction of First Refusal Space. Tenant shall take the First Refusal Space in its "As-Is" condition (except as otherwise provided in the First Refusal Notice), and Tenant shall be entitled to construct improvements in the First Refusal Space at Tenant's expense, in accordance with and subject to the provisions of Article 8 of this Lease.

1.4.4 Lease of First Refusal Space. If Tenant timely exercises Tenant's right to lease the First Refusal Space as set forth herein, Landlord and Tenant shall execute an amendment adding such First Refusal Space to this Lease upon the First Refusal Economic Terms set forth in Landlord's First Refusal Notice and upon the same non-economic terms and conditions as applicable to the Premises then leased by Tenant under this Lease. Unless otherwise specified in the First Refusal Notice, Tenant shall commence payment of rent for the First Refusal Space and the Lease Term of the First Refusal Space shall commence upon the date of delivery of such First Refusal Space to Tenant. The Lease Term for the First Refusal Space shall be as provided in the First Refusal Economic Terms

1.4.5 No Defaults. The rights contained in this Section 1.4 shall be personal to the original Tenant executing this Lease ("**Original Tenant**") and any Affiliate Assignee, and may not be exercised by the Original Tenant or such Affiliate Assignee (and not any other assignee, sublessee or other transferee of the Original Tenant's interest (or Affiliate Assignee's interest) in this Lease) if the Original Tenant or such Affiliate Assignee has subleased more than twenty-five percent (25%) of the Premises then leased by Original Tenant or such Affiliate Assignee as of the date of Tenant's exercise of its right of first refusal. In addition, at Landlord's option and in addition to Landlord's other remedies set forth in this Lease, at law and/or in equity, Tenant shall not have the right to lease the First Refusal Space as provided in this Section 1.4 if, as of the date of the First Refusal Notice, or, at Landlord's option, as of the scheduled date of delivery of such First Refusal Space to Tenant, Tenant is in default under this Lease beyond the expiration of all applicable notice and cure periods.

1.4.6 Remedy. The sole remedy of Tenant for a breach by Landlord of its obligations under Section 1.4 shall be an action against Landlord for direct damages (excluding consequential and punitive damages), and for a temporary restraining order, preliminary injunction, injunction or specific performance, but no other remedy, equitable or otherwise.

ARTICLE 2

LEASE TERM

The terms and provisions of this Lease shall be effective as of the date of this Lease except for the provisions of this Lease relating to the payment of Rent, and Tenant's obligations under Articles 7, 10.1, and 21 (or any other

performance obligation that tenants typically perform only after the Lease Commencement Date). The term of this Lease (the "**Lease Term**") shall be as set forth in Section 7.1 of the Summary and shall commence on the date (the "**Lease Commencement Date**") set forth in Section 7.2 of the Summary (subject, however, to the terms of the Tenant Work Letter), and shall terminate on the date (the "**Lease Expiration Date**") set forth in Section 7.3 of the Summary, unless this Lease is sooner terminated as hereinafter provided. For purposes of this Lease, the term "**Lease Year**" shall mean each consecutive twelve (12) month period during the Lease Term, provided that the last Lease Year shall end on the Lease Expiration Date. If Landlord does not deliver possession of the Premises to Tenant Ready for Occupancy on or before the anticipated Lease Commencement Date (as set forth in Section 7.2(ii) of the Summary), Landlord shall not be subject to any liability nor shall the validity of this Lease nor the obligations of Tenant hereunder be affected; provided that if Landlord does not deliver possession of the Premises to Tenant Ready for Occupancy on or before the thirtieth (30th) day following the anticipated Lease Commencement Date (set forth in Section 7.2 of the Summary), subject to deferral for Tenant Delays (in accordance with Section 4.2 of the Tenant Work Letter) and Force Majeure delays (as defined in Section 24.17 hereof (but limited as further defined below and not to exceed thirty (30) days of Force Majeure Delays)), then Tenant shall receive one (1) Free Rent Day (as hereinafter defined) for each day that elapses from and after the thirtieth (30th) day following the anticipated Lease Commencement Date until and including the date on which Landlord delivers possession of the Premises to Tenant Ready for Occupancy. If Landlord does not deliver possession of the Premises to Tenant Ready for Occupancy on or before April 17, 2020 (as such date may be extended due to Tenant Delays and Force Majeure Delays (but not to exceed thirty (30) days of Force Majeure Delays) then Tenant shall have the right to terminate this Lease by written notice to Landlord, whereupon all monies previously paid by Tenant to Landlord shall be reimbursed to Tenant. A "**Free Rent Day**" means a day for which Tenant has no obligation to pay Base Rent nor Additional Rent after the Lease Commencement Date, and all Free Rent Days shall be applied as soon as possible following the Lease Commencement Date. If the Lease Commencement Date is a date which is other than the anticipated Lease Commencement Date set forth in Section 7.2(ii) of the Summary, then, following the Lease Commencement Date, Landlord shall deliver to Tenant an amendment to lease in the form attached hereto as **Exhibit C**, attached hereto, setting forth, among other things, the Lease Commencement Date, and the Lease Expiration Date, and Tenant shall execute and return such amendment to Landlord within ten (10) business days after Tenant's receipt thereof. If Tenant fails to execute and return the amendment within such 10-business day period, Tenant shall be deemed to have approved and confirmed the dates set forth therein, provided that such deemed approval shall not relieve Tenant of its obligation to execute and return the amendment (and such failure shall constitute a default by Tenant hereunder after the expiration of applicable notice and cure periods).

ARTICLE 3

BASE RENT

Tenant shall pay, without notice or demand, to Landlord at the address set forth in Section 3 of the Summary, or at such other place as Landlord may from time to time designate in writing, in currency or a check for currency which, at the time of payment, is legal tender for private or public debts in the United States of America, base rent ("**Base Rent**") as set forth in Section 8 of the Summary, payable in equal monthly installments as set forth in Section 8 of the Summary in advance on or before the first day of each and every month during the Lease Term, without any setoff or deduction whatsoever. Concurrently with Tenant's execution of this Lease, Tenant shall deliver to Landlord an amount equal to the Base Rent payable by Tenant for the Premises for the fourth (4th) full month of the Lease Term (i.e., Three Hundred Twenty-Seven Thousand One Hundred Fifty-Seven and 60/100 Dollars ($327,157.60)). If any rental payment date (including the Lease Commencement Date) falls on a day of the month other than the first day of such month or if any rental payment is for a period which is shorter than one month, then the rental for any such fractional month shall be a proportionate amount of a full calendar month's rental based on the proportion that the number of days in such fractional month bears to the number of days in the calendar month during which such fractional month occurs. All other payments or adjustments required to be made under the terms of this Lease that require proration on a time basis shall be prorated on the same basis.

Notwithstanding anything to the contrary contained herein and so long as Tenant is not then in default under this Lease (beyond the expiration of all applicable notice and cure periods), Landlord hereby agrees to abate Tenant's obligation to pay one hundred percent (100%) of Tenant's monthly Base Rent for the first three (3) full months of the initial Lease Term (the "**Abated Rent**"). During such abatement period, Tenant shall still be responsible for the payment of all of its other monetary obligations under this Lease. In the event of a default by Tenant under the terms of this Lease that results in early termination pursuant to the provisions of Article 19 of this Lease, then as a part of the recovery set

forth in Article 19 of this Lease, Landlord shall be entitled to the recovery of the unamortized portion of the Abated Rent that was abated under the provisions of this Article 3.

ARTICLE 4

ADDITIONAL RENT

4.1 Additional Rent. In addition to paying the Base Rent specified in Article 3 above, Tenant shall pay as additional rent the sum of the following: (i) Tenant's Share (as such term is defined below) of the annual Operating Expenses allocated to the Building (pursuant to Section 4.3.4 below); plus (ii) Tenant's Share of the annual Tax Expenses allocated to the Building (pursuant to Section 4.3.4 below); plus (iii) Tenant's Share of the annual Utilities Costs allocated to the Building (pursuant to Section 4.3.4 below). Landlord currently estimates that such amounts will be $1.33 per rentable square foot per month in 2019, excluding utilities to the Premises; provided, however, that such estimate shall not be binding on Landlord (nor affect Tenant's obligations under this Lease) in the event that the actual amounts are in excess of such estimate. Such additional rent, together with any and all other amounts payable by Tenant to Landlord pursuant to the terms of this Lease (including, without limitation, pursuant to Article 6), shall be hereinafter collectively referred to as the "**Additional Rent**." The Base Rent and Additional Rent are herein collectively referred to as the "**Rent**." All amounts due under this Article 4 as Additional Rent shall be payable for the same periods and in the same manner, time and place as the Base Rent. Without limitation on other obligations of Tenant which shall survive the expiration of the Lease Term, the obligations of Tenant to pay the Additional Rent provided for in this Article 4 shall survive the expiration of the Lease Term.

4.2 Definitions. As used in this Article 4, the following terms shall have the meanings hereinafter set forth:

4.2.1 "**Calendar Year**" shall mean each calendar year in which any portion of the Lease Term falls, through and including the calendar year in which the Lease Term expires.

4.2.2 "**Expense Year**" shall mean each Calendar Year.

4.2.3 "Operating Expenses" shall mean all expenses, costs and amounts of every kind and nature which Landlord shall pay during any Expense Year because of or in connection with the ownership, management, maintenance, repair, restoration or operation of the Project, including, without limitation, any amounts paid for: (i) the cost of operating, maintaining, repairing, renovating and managing the utility systems, lab systems, central plant, mechanical systems, sanitary and storm drainage systems, any elevator systems (if applicable) and all other "Systems and Equipment" (as defined in Section 4.2.4 of this Lease), and the cost of supplies and equipment and maintenance and service contracts in connection therewith; (ii) the cost of licenses, certificates, permits and inspections, and the cost of contesting the validity or applicability of any governmental enactments which may affect Operating Expenses, and the costs incurred in connection with implementation and operation (by Landlord or any common area association(s) formed for the Project) of any transportation system management program or similar program; (iii) the cost of insurance carried by Landlord, in such amounts as Landlord may reasonably determine or as may be required by any mortgagees of any mortgage or the lessor of any ground lease affecting the Project; (iv) the cost of landscaping, relamping, supplies, tools, equipment and materials, and all fees, charges and other costs (including consulting fees, legal fees and accounting fees) incurred in connection with the management, operation, repair and maintenance of the Project; (v) any equipment rental agreements or management agreements (including the cost of any property management fee (to be equal to three percent (3%) of Tenant's then annual Base Rent) but excluding the rental of any office space provided thereunder); (vi) costs of operating amenities in and/or serving the Project and the wages, salaries and other compensation and benefits of all persons to the extent they are engaged in the operation, management, maintenance or security of the Project, and employer's Social Security taxes, unemployment taxes or insurance, and any other taxes which may be levied on such wages, salaries, compensation and benefits; (vii) payments under any easement, license, operating agreement, declaration, restrictive covenant, underlying or ground lease (excluding rent), or instrument pertaining to the sharing of costs by the Project (including but not limited to, the CC&Rs described in Article 5 hereof); (viii) the cost of janitorial service, trash removal (provided, however, Operating Expenses shall not include the cost of janitorial services and trash removal services provided to the Premises or the premises of other tenants of the Building and/or the Project or the cost of replacing light bulbs, lamps, starters and ballasts for lighting fixtures in the Premises and the premises of other tenants in the Building and/or the Project to the extent such services are directly provided and paid for by Tenant pursuant to Section 6.6 below), alarm and security service, if any, window cleaning, replacement of wall and floor coverings, ceiling

tiles and fixtures in lobbies, corridors, restrooms and other common or public areas or facilities, maintenance and replacement of curbs and walkways, repair to roofs and re-roofing; (ix) amortization (including interest on the unamortized cost) of the cost of acquiring or the rental expense of personal property used in the maintenance, operation and repair of the Project; (x) the cost of any capital improvements or other costs (I) which are intended as a labor-saving device or to effect other economies in the operation or maintenance of the Project or which are otherwise permitted hereunder, (II) made to the Project or any portion thereof after the Lease Commencement Date that are required under any governmental law or regulation, or (III) which are Conservation Costs (as defined below) and/or which are reasonably determined by Landlord to be in the best interests of the Project; provided, however, that if any such cost described in (I), (II) or (III) above, is a capital expenditure, such cost shall be amortized (including interest on the unamortized cost) over the useful life of the item as Landlord shall reasonably determine; and (xi) the costs and expenses of complying with, or participating in, conservation, recycling, sustainability, energy efficiency, waste reduction or other programs or practices implemented or enacted from time to time at the Building and/or Project, including, without limitation, in connection with any LEED (Leadership in Energy and Environmental Design) rating or compliance system or program, including that currently coordinated through the U.S. Green Building Council or Energy Star rating and/or compliance system or program (collectively, "**Conservation Costs**"). If Landlord is not furnishing any particular work or service (the cost of which, if performed by Landlord, would be included in Operating Expenses) to a tenant who has undertaken to perform such work or service in lieu of the performance thereof by Landlord, Operating Expenses shall be deemed to be increased by an amount equal to the additional Operating Expenses which would reasonably have been incurred during such period by Landlord if it had at its own expense furnished such work or service to such tenant. If any of (x) the Building, (y) the Other Existing Building (but only during the period of time the same are included by Landlord within the Project) and (z) any additional buildings are added to the Project pursuant to Section 1.1.3 above (but only during the period of time after such additional buildings have been fully constructed and ready for occupancy and are included by Landlord within the Project) are less than ninety-five percent (95%) occupied during all or a portion of any Expense Year, Landlord shall make an appropriate adjustment to the variable components of Operating Expenses for such year or applicable portion thereof, employing sound accounting and management principles, to determine the amount of Operating Expenses that would have been paid had the Building, such Other Existing Building and such additional buildings (if any) been ninety-five percent (95%) occupied; and the amount so determined shall be deemed to have been the amount of Operating Expenses for such year, or applicable portion thereof.

Subject to the provisions of Section 4.3.4 below, Landlord shall have the right, from time to time, to equitably allocate some or all of the Operating Expenses (and/or Tax Expenses and Utilities Costs) between the Building and the Other Existing Building and/or among different tenants of the Project and/or among the Other Buildings (as defined in Section 4.3.4 below, if any), as and when such different buildings are constructed and added to (and/or excluded from) the Project (the "**Cost Pools**"). Such Cost Pools may also include an allocation of certain Operating Expenses (and/or Tax Expenses and Utilities Costs) within or under covenants, conditions and restrictions affecting the Project. In addition, subject to the provisions of Section 4.3.4 below, Landlord shall have the right from time to time, in its reasonable discretion, to include future buildings in the Project for purposes of determining Operating Expenses, Tax Expenses and Utilities Costs and/or the provision of various services and amenities thereto, including allocation of Operating Expenses, Tax Expenses and Utilities Costs in any such Cost Pools.

Notwithstanding the foregoing, Operating Expenses shall not, however, include: (A) costs of leasing commissions, attorneys' fees and other costs and expenses incurred in connection with negotiations or disputes with present or prospective tenants or other occupants of the Project; (B) costs (including permit, license and inspection costs) incurred in renovating or otherwise improving, decorating or redecorating rentable space for other tenants or vacant rentable space; (C) costs incurred due to the violation by Landlord of the terms and conditions of any lease of space in the Project; (D) costs of overhead or profit increment paid to Landlord or to subsidiaries or affiliates of Landlord for services in or in connection with the Project to the extent the same exceeds the costs of overhead and profit increment included in the costs of such services which could be obtained from third parties on a competitive basis; (E) costs of interest on debt or amortization on any mortgages, and rent payable under any ground lease of the Project; (F) Utilities Costs; (G) Tax Expenses; (H) costs occasioned by casualties or condemnation; (I) costs to correct violation of law applicable to the Premises or the Project on the Lease Commencement Date: (J) costs incurred in connection with the presence of any Hazardous Materials, except to the extent caused by the release or emission of the Hazardous Material in question by Tenant or any of Tenant's Parties; (K) expense reserves; (L) costs which could properly be capitalized under generally accepted accounting principles, except as specifically provided in 4.2.3(x), above, and only to the extent amortized over the useful life of the capital item in question; (M) costs for services not provided to Tenant under this Lease or are of a nature that are paid directly by Tenant; (N) profit by Landlord for managing or administering the Project

except as set forth in Section 4.2.3(v) above; and (O) any costs related to construction of the Other Buildings or completion of the work described in Exhibit B.

4.2.4 "**Systems and Equipment**" shall mean any plant (including any central plant), machinery, transformers, duct work, cable, wires, and other equipment, facilities, and systems designed to supply heat, ventilation, air conditioning and humidity or any other services or utilities, or comprising or serving as any component or portion of the electrical, gas, steam, plumbing, sprinkler, communications, alarm, lab, security, or fire/life safety systems or equipment, or any other mechanical, electrical, electronic, computer or other systems or equipment which serve the Building and/or any other building in the Project in whole or in part.

4.2.5 "**Tax Expenses**" shall mean all federal, state, county, or local governmental or municipal taxes, fees, assessments, charges or other impositions of every kind and nature, whether general, special, ordinary or extraordinary, (including, without limitation, real estate taxes, general and special assessments, transit assessments, fees and taxes, child care subsidies, fees and/or assessments, job training subsidies, fees and/or assessments, open space fees and/or assessments, housing subsidies and/or housing fund fees or assessments, public art fees and/or assessments, leasehold taxes or taxes based upon the receipt of rent, including gross receipts or sales taxes applicable to the receipt of rent, personal property taxes imposed upon the fixtures, machinery, equipment, apparatus, systems and equipment, appurtenances, furniture and other personal property used in connection with the Project), which Landlord shall pay during any Expense Year because of or in connection with the ownership, leasing and operation of the Project or Landlord's interest therein. For purposes of this Lease, Tax Expenses shall be calculated as if (i) the tenant improvements in the Building, the Other Existing Building and any additional buildings added to the Project pursuant to Section 1.1.3 above (but only during the period of time that such Other Existing Building and additional buildings are included by Landlord within the Project) were fully constructed, and (ii) the Project, the Building, such Other Existing Building and such additional buildings (if any) and all tenant improvements therein were fully assessed for real estate tax purposes.

4.2.5.1 Tax Expenses shall include, without limitation:

(i) Any tax on Landlord's rent, right to rent or other income from the Project or as against Landlord's business of leasing any of the Project;

(ii) Any assessment, tax, fee, levy or charge in addition to, or in substitution, partially or totally, of any assessment, tax, fee, levy or charge previously included within the definition of real property tax, it being acknowledged by Tenant and Landlord that Proposition 13 was adopted by the voters of the State of California in the June 1978 election ("**Proposition 13**") and that assessments, taxes, fees, levies and charges may be imposed by governmental agencies for such services as fire protection, street, sidewalk and road maintenance, refuse removal and for other governmental services formerly provided without charge to property owners or occupants. It is the intention of Tenant and Landlord that all such new and increased assessments, taxes, fees, levies, and charges and all similar assessments, taxes, fees, levies and charges be included within the definition of Tax Expenses for purposes of this Lease;

(iii) Any assessment, tax, fee, levy, or charge allocable to or measured by the area of the Premises or the rent payable hereunder, including, without limitation, any gross income tax upon or with respect to the possession, leasing, operating, management, maintenance, alteration, repair, use or occupancy by Tenant of the Premises, or any portion thereof;

(iv) Any assessment, tax, fee, levy or charge, upon this transaction or any document to which Tenant is a party, creating or transferring an interest or an estate in the Premises; and

(v) Any reasonable expenses incurred by Landlord in attempting to protest, reduce or minimize Tax Expenses.

4.2.5.2 Notwithstanding anything to the contrary contained in this Section 4.2.5, there shall be excluded from Tax Expenses (i) all excess profits taxes, franchise taxes, gift taxes, capital stock taxes, inheritance and succession taxes, estate taxes, federal and state net income taxes, and other taxes to the extent applicable to Landlord's net income (as opposed to rents, receipts or income attributable to operations at the Project), (ii) any items included as Operating Expenses, (iii) any items paid by Tenant under Section 4.4 below, and (iv) any assessments in excess of the amount which would be payable if such assessments were paid in installments over the longest permitted term.

4.2.6 "**Tenant's Share**" shall mean the percentage set forth in Section 9 of the Summary. Tenant's Share was calculated by dividing the number of rentable square feet of the Premises by the total rentable square feet in the Building (as set forth in Section 9 of the Summary), and stating such amount as a percentage. Subject to Section 1.3 above, Tenant's Share as set forth in Section 9 of the Summary shall be binding on the parties for the entire Term. If Tenant's Share is adjusted pursuant to Section 1.3 above then, as to the Expense Year in which such adjustment occurs, Tenant's Share for such year shall be determined on the basis of the number of days during such Expense Year that each such Tenant's Share was in effect.

4.2.7 "**Utilities Costs**" shall mean all actual charges for utilities for the Building and the Project (including utilities for the Other Existing Building and additional buildings, if any, added to the Project during the period of time the same are included by Landlord within the Project) which Landlord shall pay during any Expense Year, including, but not limited to, the costs of water, sewer, gas and electricity, and the costs of HVAC and other utilities, including any lab utilities and central plant utilities (but excluding those charges for which tenants directly reimburse Landlord or otherwise pay directly to the utility company) as well as related fees, assessments, measurement meters and devices and surcharges. Utilities Costs shall be calculated assuming the Building (and, during the period of time when such buildings are included by Landlord within the Project, the Other Existing Building and any additional buildings, if any, added to the Project) are at least ninety-five percent (95%) occupied. If, during all or any part of any Expense Year, Landlord shall not provide any utilities (the cost of which, if provided by Landlord, would be included in Utilities Costs) to a tenant (including Tenant) who has undertaken to provide the same instead of Landlord, Utilities Costs shall be deemed to be increased by an amount equal to the additional Utilities Costs which would reasonably have been incurred during such period by Landlord if Landlord had at its own expense provided such utilities to such tenant. Utilities Costs shall include any costs of utilities which are allocated to the Project under any declaration, restrictive covenant, or other instrument pertaining to the sharing of costs by the Project or any portion thereof, including any covenants, conditions or restrictions now or hereafter recorded against or affecting the Project. Notwithstanding the foregoing, Utilities Costs shall not include: (A) any costs that would be considered a capital expenditure (with such costs treated, instead, as Operating Expenses, as allowed under Section 4.2.3 above), (B) any connection fees, tap-in fees, or other fees for service to the Project not in existence as of the Lease Commencement Date or (C) costs for services or utilities not provided to Tenant under this Lease or of a nature that are paid directly by Tenant.

4.3 Calculation and Payment of Additional Rent.

4.3.1 Payment of Operating Expenses, Tax Expenses and Utilities Costs. For each Expense Year ending or commencing within the Lease Term, Tenant shall pay to Landlord, as Additional Rent, the following, which payment shall be made in the manner set forth in Section 4.3.2 below: (i) Tenant's Share of Operating Expenses allocated to the Building pursuant to Section 4.3.4 below; plus (ii) Tenant's Share of Tax Expenses allocated to the Building pursuant to Section 4.3.4 below; plus (iii) Tenant's Share of Utilities Costs allocated to the Building pursuant to Section 4.3.4 below.

4.3.2 Statement of Actual Operating Expenses, Tax Expenses and Utilities Costs and Payment by Tenant. Landlord shall endeavor to give to Tenant on or before the first (1st) day of June following the end of each Expense Year, a statement (the "**Statement**") which shall state the Operating Expenses, Tax Expenses and Utilities Costs incurred or accrued for such preceding Expense Year that are allocated to the Building pursuant to Section 4.3.4 below, and which shall indicate therein Tenant's Share thereof. Within thirty (30) days after Tenant's receipt of the Statement for each Expense Year ending during the Lease Term, Tenant shall pay to Landlord the full amount of the Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs for such Expense Year, less the amounts, if any, paid during such Expense Year as the Estimated Expenses as defined in and pursuant to Section 4.3.3 below. If any Statement reflects that Tenant has overpaid Tenant's Share of Operating Expenses and/or Tenant's Share of Tax Expenses and/or Tenant's Share of Utilities Costs for such Expense Year, then Landlord shall, at Landlord's option, either (i) remit such overpayment to Tenant within thirty (30) days after such applicable Statement is delivered to Tenant, or (ii) credit such overpayment toward the Rent next due and payable by Tenant under this Lease. The failure of Landlord to timely furnish the Statement for any Expense Year shall not prejudice Landlord from enforcing its rights under this Article 4; provided, however, Tenant shall not be required to pay for any Operating Expenses, Tax Expenses or Utilities Costs until thirty (30) days after receipt of such Statement as provided in the second sentence of this Section 4.3.2 (and Estimated Expenses as provided in Section 4.3.3). Even though the Lease Term has expired and Tenant has vacated the Premises, if the Statement for the Expense Year in which this Lease terminates reflects that Tenant has overpaid and/or underpaid Tenant's Share of the Operating Expenses and/or Tenant's Share of Tax Expenses and/or Tenant's Share of Utilities Costs for such Expense Year, then within thirty (30) days after Landlord's delivery of such Statement to Tenant, Landlord shall refund

to Tenant any such overpayment, or Tenant shall pay to Landlord any such underpayment, as the case may be. Tenant's failure to object any Statement within one hundred twenty (120) days after Tenant's receipt thereof shall constitute Tenant's irrevocable waiver to object to the same. The provisions of this Section 4.3.2 shall survive the expiration or earlier termination of the Lease Term. Notwithstanding the foregoing to the contrary, Tenant shall not be responsible for Tenant's Share of any Operating Expenses, Utilities Costs or Tax Expenses attributable to any calendar year which was first billed to Tenant more than twenty-four (24) months after the date (the "**Cutoff Date**") which is the earlier of (i) the expiration of the applicable calendar year or (i) the Lease Expiration Date, except that Tenant shall be responsible for Tenant's Share of any Operating Expenses, Utilities Costs and Tax Expenses levied by any governmental authority or by any public utility company at any time following the applicable Cutoff Date which are attributable to any calendar year occurring prior to such Cutoff Date, so long as Landlord delivers to tenant a bill and supplemental statement for such amounts within ninety (90) days following Landlord's receipt of the applicable bill therefor.

4.3.3 Statement of Estimated Operating Expenses, Tax Expenses and Utilities Costs. Landlord shall endeavor to give Tenant a yearly expense estimate statement (the "**Estimate Statement**") which shall set forth Landlord's reasonable estimate (the "**Estimate**") of the total amount of Tenant's Share of the Operating Expenses, Tax Expenses and Utilities Costs allocated to the Building pursuant to Section 4.3.4 below for the then-current Expense Year shall be, and which shall indicate therein Tenant's Share thereof (the "**Estimated Expenses**"). The failure of Landlord to timely furnish the Estimate Statement for any Expense Year shall not preclude Landlord from enforcing its rights to collect any Estimated Expenses under this Article 4. Following Landlord's delivery of the Estimate Statement for the then-current Expense Year, Tenant shall pay, within thirty (30) days thereafter, a fraction of the Estimated Expenses for the then-current Expense Year (reduced by any amounts paid pursuant to the last sentence of this Section 4.3.3). Such fraction shall have as its numerator the number of months which have elapsed in such current Expense Year to the month of such payment, both months inclusive, and shall have twelve (12) as its denominator. Until a new Estimate Statement is furnished, Tenant shall pay monthly, with the monthly Base Rent installments, an amount equal to one-twelfth (1/12) of the total Estimated Expenses set forth in the previous Estimate Statement delivered by Landlord to Tenant.

4.3.4 Allocation of Operating Expenses, Tax Expenses and Utilities Costs to Building. The parties acknowledge that the Building is part of a multi-building commercial project consisting of the Building, and the Other Existing Building and such other buildings as Landlord (and/or any other owners of the Project) may elect to construct and include as part of the Project from time to time (the Other Existing Building and any such other buildings are sometimes referred to herein, collectively, as the "**Other Buildings**"), and that certain of the costs and expenses incurred in connection with the Project (i.e. the Operating Expenses, Tax Expenses and Utilities Costs) shall be shared among the Building and/or such Other Buildings (if any), while certain other costs and expenses which are solely attributable to the Building and such Other Buildings, as applicable, shall be allocated directly to the Building and the Other Buildings, respectively. Accordingly, as set forth in Sections 4.1 and 4.2 above, Operating Expenses, Tax Expenses and Utilities Costs are determined annually for the Project as a whole, and a portion of the Operating Expenses, Tax Expenses and Utilities Costs, which portion shall be determined by Landlord on an equitable basis, shall be allocated to the Building (as opposed to the tenants of the Other Buildings), and such portion so allocated shall be the amount of Operating Expenses, Tax Expenses and Utilities Costs payable with respect to the Building upon which Tenant's Share shall be calculated. Such portion of the Operating Expenses, Tax Expenses and Utilities Costs allocated to the Building shall include all Operating Expenses, Tax Expenses and Utilities Costs which are attributable solely to the Building, and an equitable portion of the Operating Expenses, Tax Expenses and Utilities Costs attributable to the Project as a whole and shall not include Operating Expenses, Tax Expenses and Utilities Costs related solely to the Other Buildings. As an example of such allocation with respect to Tax Expenses and Utilities Costs, it is anticipated that Landlord (and/or any other owners of the Project) may receive separate tax bills which separately assess the improvements component of Tax Expenses for each building in the Project and/or Landlord may receive separate utilities bills from the utilities companies identifying the Utilities Costs for certain of the utilities costs directly incurred by each such building (as measured by separate meters installed for each such building), and such separately assessed Tax Expenses and separately metered Utilities Costs shall be calculated for and allocated separately to each such applicable building. In addition, in the event Landlord (and/or any other owners of the Project) elect to subdivide certain common area portions of the Project such as landscaping, public and private streets, driveways, walkways, courtyards, plazas, transportation facilitation areas and/or accessways into a separate parcel or parcels of land (and/or separately convey all or any of such parcels to a common area association to own, operate and/or maintain same), the Operating Expenses, Tax Expenses and Utilities Costs for such common area parcels of land may be aggregated and then reasonably allocated by Landlord to the Building and such Other Buildings on an equitable basis as Landlord (and/or any applicable covenants, conditions and restrictions for any such common area association) shall provide from time to time.

4.4 Taxes and Other Charges for Which Tenant Is Directly Responsible. Tenant shall reimburse Landlord upon demand for all taxes or assessments required to be paid by Landlord (except to the extent included in Tax Expenses by Landlord), excluding state, local and federal personal or corporate income taxes measured by the net income of Landlord from all sources and estate and inheritance taxes, whether or not now customary or within the contemplation of the parties hereto, when:

4.4.1 said taxes are measured by or reasonably attributable to the cost or value of Tenant's equipment, furniture, fixtures and other personal property located in the Premises;

4.4.2 said taxes are assessed upon or due to the possession, leasing, operation, management, maintenance, alteration, repair, use or occupancy by Tenant of the Premises or any portion of the Project; or

4.4.3 said taxes are assessed upon this transaction or any document to which Tenant is a party creating or transferring an interest or an estate in the Premises.

4.5 Late Charges. If any installment of Rent or any other sum due from Tenant shall not be received by Landlord or Landlord's designee within five (5) days of the due date therefor, then Tenant shall pay to Landlord a late charge equal to five percent (5%) of the amount due plus any attorneys' fees incurred by Landlord by reason of Tenant's failure to pay Rent and/or other charges when due hereunder. The late charge shall be deemed Additional Rent and the right to require it shall be in addition to all of Landlord's other rights and remedies hereunder, at law and/or in equity and shall not be construed as liquidated damages or as limiting Landlord's remedies in any manner. In addition to the late charge described above, any Rent or other amounts owing hereunder which are not paid by the date that they are due shall thereafter bear interest until paid at a rate (the "**Interest Rate**") equal to the lesser of (i) the "Prime Rate" or "Reference Rate" announced from time to time by the Bank of America (or such reasonable comparable national banking institution as selected by Landlord in the event Bank of America ceases to exist or publish a Prime Rate or Reference Rate), plus four percent (4%), or (ii) the highest rate permitted by applicable law. Notwithstanding the foregoing, before assessing a late charge or interest the first time in any one (1) year period, Landlord shall provide Tenant written notice of the delinquency, and shall waive such late charge if Tenant pays such delinquency within five (5) days thereafter.

4.6 Audit Rights. Tenant shall have the right, at Tenant's cost, after reasonable notice to Landlord, to have Tenant's authorized employees or agents inspect, at Landlord's main corporate office during normal business hours, Landlord's books, records and supporting documents concerning the Operating Expenses, Tax Expenses and Utilities Costs set forth in any Statement delivered by Landlord to Tenant for a particular Expense Year pursuant to Section 4.3.2 above; provided, however, Tenant shall have no right to conduct such inspection or object to or otherwise dispute the amount of the Operating Expenses, Tax Expenses and Utilities Costs set forth in any such Statement, unless Tenant notifies Landlord of such inspection objection and dispute, completes such inspection within six (6) months immediately following Landlord's delivery of a Statement (the "**Review Period**"); provided, further, that notwithstanding any such timely inspection, objection, dispute, and/or audit, and as a condition precedent to Tenant exercise of its right of inspection, objection, dispute, and/or audit as set forth in this Section 4.6, Tenant shall not be permitted to withhold payment of, and Tenant shall timely pay to Landlord, the full amounts as required by the provisions of this Article 4 in accordance with such Statement. However, such payment may be made under protest pending the outcome of any audit. In connection with any such inspection by Tenant, Landlord and Tenant shall reasonably cooperate with each other so that such inspection can be performed pursuant to a mutually acceptable schedule, in an expeditious manner and without undue interference with Landlord's operation and management of the Project. If after such inspection and/or request for documentation, Tenant disputes the amount of the Operating Expenses, Tax Expenses and Utilities Costs set forth in the Statement, Tenant shall have the right, but not the obligation, within the Review Period, to cause an independent certified public accountant which is not paid on a contingency basis and which is mutually approved by Landlord and Tenant (the "**Accountant**") to complete an audit of Landlord's books and records to determine the proper amount of the Operating Expenses, Tax Expenses and Utilities Costs incurred and amounts payable by Tenant for the Expense Year which is the subject of such Statement. Such audit by the Accountant shall be final and binding upon Landlord and Tenant. If Landlord and Tenant cannot mutually agree as to the identity of the Accountant within thirty (30) days after Tenant notifies Landlord that Tenant desires an audit to be performed, then the Accountant shall be one of the "Big 4" accounting firms selected by Landlord, which is not paid on a contingency basis and is not, and has not been, otherwise employed or retained by Landlord. If such audit reveals that Landlord has over-charged Tenant, then within thirty (30) days after the results of such audit are made available to Landlord, Landlord shall reimburse to Tenant the amount of such over-charge. If the audit reveals that the Tenant was under-charged, then within thirty (30) days after the results of such audit are made available to Tenant, Tenant shall reimburse to Landlord the amount of such under-charge. Tenant agrees to

pay the cost of such audit unless it is subsequently determined that Landlord's original Statement which was the subject of such audit was in error to Tenant's disadvantage by five percent (5%) or more of the total Operating Expenses, Tax Expenses and Utilities Costs which was the subject of the audit (in which case Landlord shall pay the cost of such audit). The payment by Tenant of any amounts pursuant to this Article 4 shall not preclude Tenant from questioning the correctness of any Statement provided by Landlord at any time during the Review Period, but the failure of Tenant to object thereto, conduct and complete its inspection and have the Accountant conduct and complete the audit as described above prior to the expiration of the Review Period shall be conclusively deemed Tenant's approval of the Statement in question and the amount of Operating Expenses, Tax Expenses and Utilities Costs shown thereon, subject to Tenant's right to review Statements for the prior twelve (12) months. In connection with any inspection and/or audit conducted by Tenant pursuant to this Section 4.6, Tenant agrees to keep, and to cause all of Tenant's employees and consultants and the Accountant to keep, all of Landlord's books and records and the audit, and all information pertaining thereto and the results thereof, strictly confidential, and in connection therewith, Tenant shall cause such employees, consultants and the Accountant to execute such reasonable confidentiality agreements as Landlord may require prior to conducting any such inspections and/or audits.

ARTICLE 5

USE OF PREMISES; HAZARDOUS MATERIALS; ODORS AND EXHAUST

5.1 Use. Tenant shall use the Premises solely for general office, laboratory, research and development, manufacturing, and all other life science uses to the extent consistent with the current zoning for the Premises, all applicable laws and the first-class nature of the Project as a first-class biotechnology project, and Tenant shall not use or permit the Premises to be used for any other purpose or purposes whatsoever, without Landlord's consent. Tenant shall not use, or suffer or permit any person or persons to use, the Premises or any part thereof for any use or purpose contrary to the provisions of **Exhibit D**, attached hereto, or in violation of the laws of the United States of America, the state in which the Project is located, or the ordinances, regulations or requirements of the local municipal or county governing body or other lawful authorities having jurisdiction over the Project. Tenant shall comply with the Rules and Regulations and all recorded covenants, conditions, and restrictions, and the provisions of all ground or underlying leases, now or hereafter affecting the Project, including but not limited to, (i) that certain Declaration of Reciprocal Easements, Covenants and Restrictions of Centennial Towers, dated as of May 5, 2008, and recorded in the Official Records of San Mateo County, California ("**Official Records**") on September 18, 2008 as Instrument No. 2008-105136, as amended by that certain First Amendment to Declaration of Reciprocal Easements, Covenants and Restrictions of Centennial Towers dated November 17, 2015 and recorded in the Official Records on November 18, 2015 as Instrument No. 2008-121410, and as further amended by that certain Second Amendment to Declaration of Reciprocal Easements, Covenants and Restrictions of Centennial Towers dated November 17, 2015 and recorded in the Official Records on November 18, 2015 as Instrument No. 2008-121417, and (ii) that certain Declaration of Covenants, Conditions and Restrictions of Centennial Towers, dated March 27, 2009 and recorded in the Official Records on April 3, 2009, as Instrument No. 2009-038658, as amended by that certain First Amendment to Declaration of Covenants, Conditions and Restrictions of Centennial Towers, dated as of April 20, 2010, and recorded in the Official Records on May 12, 2010, as Instrument No. 2010-051876, and as further amended by that certain Second Amendment to Declaration of Covenants, Conditions and Restrictions of Centennial Towers, dated as of November 17, 2015, and recorded in the Official Records on November 18, 2015 as Instrument No. 2015-121409 (collectively, the "**CC&Rs**"), as the same may be amended, amended and restated, supplemented or otherwise modified from time to time; provided that any such amendments, restatements, supplements or modifications do not materially modify Tenant's rights or obligations hereunder.

5.2 Hazardous Materials.

5.2.1 Definitions: As used in this Lease, the following terms have the following meanings:

(a) "**Environmental Law**" means any past, present or future federal, state or local statutory or common law, or any regulation, ordinance, code, plan, order, permit, grant, franchise, concession, restriction or agreement issued, entered, promulgated or approved thereunder, relating to (a) the environment, human health or safety, including, without limitation, emissions, discharges, releases or threatened releases of Hazardous Materials (as defined below) into the environment (including, without limitation, air, surface water, groundwater or land), or (b) the manufacture, generation, refining, processing, distribution, use, sale, treatment, receipt, storage, disposal, transport, arranging for transport, or handling of Hazardous Materials.

(b) "**Environmental Permits**" mean collectively, any and all permits, consents, licenses, approvals and registrations of any nature at any time required pursuant to, or in order to comply with, any Environmental Law including, but not limited to, any Spill Control Countermeasure Plan and any Hazardous Materials Management Plan.

(c) "**Hazardous Materials**" shall mean and include any hazardous or toxic materials, substances or wastes as now or hereafter designated or regulated under any Environmental Law, including, without limitation, asbestos, petroleum, petroleum hydrocarbons and petroleum based products, urea formaldehyde foam insulation, polychlorinated biphenyls ("PCBs"), freon and other chlorofluorocarbons, "biohazardous waste," "medical waste," "infectious agent", "mixed waste" or other waste under California Health and Safety Code §§ 117600 et, seq.

(d) "**Release**" shall mean with respect to any Hazardous Materials, any release, deposit, discharge, emission, leaking, pumping, leaching, spilling, seeping, migrating, injecting, pumping, pouring, emptying, escaping, dumping, disposing or other movement of Hazardous Materials in violation of Environmental Law or this Lease.

5.2.2 Tenant's Obligations – Environmental Permits. Tenant will (i) obtain and maintain in full force and effect all Environmental Permits that may be required from time to time under any Environmental Laws applicable to Tenant or the Premises and (ii) be and remain in compliance with all terms and conditions of all such Environmental Permits and with all other limitations, restrictions, conditions, standards, prohibitions, requirements, obligations, schedules and timetables contained in all Environmental Laws applicable to Tenant or the Premises.

5.2.3 Tenant's Obligations – Hazardous Materials. Except as expressly permitted herein (including with respect to Hazardous Materials on the Hazardous Materials List, as to which no consent is required), Tenant agrees not to cause or permit any Hazardous Materials to be brought upon, stored, used, handled, generated, released or disposed of on, in, under or about the Premises, or any other portion of the Property by Tenant or its agents, employees, subtenants, assignees, licensees, contractors or invitees (collectively, "**Tenant's Parties**"), without the prior written consent of Landlord, which consent must be provided or withheld within seven (7) days of Tenant's request and which Landlord may withhold in its reasonable discretion. Landlord acknowledges that it is not the intent of this Section 5.2 to prohibit Tenant from operating its business for the uses permitted hereunder, and Landlord hereby consents to Tenant's storage, use, generation or release in compliance with applicable Environmental Laws of those Hazardous Materials that are on the Landlord approved Hazardous Materials List. Tenant may operate its business according to the custom of Tenant's industry so long as the use or presence of Hazardous Materials is strictly and properly monitored in accordance with applicable Environmental Laws. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord prior to the Lease Commencement Date a list identifying each type of Hazardous Material to be present at the Premises and setting forth any and all governmental approvals or permits required in connection with the presence of such Hazardous Material at the Premises (the "**Hazardous Materials List**"). Tenant shall deliver to Landlord an updated Hazardous Materials List on or prior to each annual anniversary of the Lease Commencement Date and shall also deliver an updated Hazardous Materials List before any new Hazardous Materials are brought to the Premises. Tenant shall deliver to Landlord true and correct copies of the following documents (hereinafter referred to as the "**Documents**") relating to the handling, storage, disposal and emission of Hazardous Materials prior to the Lease Commencement Date or, if unavailable at that time, concurrently with the receipt from or submission to any Governmental Authority: permits; approvals; reports and correspondence; storage and management plans; notices of violations of applicable Environmental Laws; plans relating to the installation of any storage tanks to be installed in, on, under or about the Premises (provided that installation of storage tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent Landlord may withhold in its sole and absolute (but good faith) discretion); and all closure plans or any other documents required by any and all governmental authorities for any storage tanks installed in, on, under or about the Premises for the closure of any such storage tanks. For each type of Hazardous Material listed, the Documents shall include (t) the chemical name, (u) the material state (e.g., solid, liquid, gas or cryogen), (v) the concentration, (w) the storage amount and storage condition (e.g., in cabinets or not in cabinets), (x) the use amount and use condition (e.g., open use or closed use), (y) the location (e.g., room number or other identification) and (z) if known, the chemical abstract service number. Tenant shall not be required, however, to provide Landlord with any portion of the Documents containing information of a proprietary nature, which Documents, in and of themselves, do not contain a reference to any Hazardous Materials or activities related to Hazardous Materials. Upon the expiration or earlier termination of this Lease, Tenant agrees to promptly remove from the Premises, the Building and the Project, at its sole cost and expense, any and all Hazardous Materials, including any equipment or systems containing Hazardous Materials which are installed, brought upon, stored, used, generated or released (to the

extent clean-up of any release is required by Environmental Laws) upon, in, under or about the Premises, the Building and/or the Project or any portion thereof by Tenant or any of Tenant's Parties during the Term of this Lease.

5.2.4 Landlord's Right to Conduct Environmental Assessment. At any time during the Lease Term, Landlord shall have the right to conduct an environmental assessment of the Premises (as well as any other areas in, on or about the Project that Landlord reasonably believes may have been affected adversely by Tenant's use of the Premises (collectively, the "**Affected Areas**") in order to confirm that the Premises and the Affected Areas do not contain any Hazardous Materials in violation of applicable Environmental Laws or under conditions constituting or likely to constitute a Release of Hazardous Materials. Such environmental assessment shall be a so-called "Phase I" assessment or such other level of investigation which shall be the standard of diligence in the purchase or lease of similar property at the time, together with any additional investigation and report which would customarily follow any discovery contained in such initial Phase I assessment (including, but not limited to, any so-called "Phase II" report). Such right to conduct such environmental assessment shall not be exercised more than once per calendar year unless Tenant is in default under this Section 5.2. Such environmental assessments or inspections shall be subject to Article 22 and be at Landlord's sole cost and expense unless it is discovered that Tenant has violated the terms of this Lease pertaining to Hazardous Materials.

5.2.5 Tenant's Obligations to perform Corrective Action. If the data from any environmental assessment authorized and undertaken by Landlord pursuant to Section 5.2.4 indicates there has been a Release, threatened Release or other conditions with respect to Hazardous Materials on, under or emanating from the Premises and the Affected Areas by Tenant or Tenant's Parties that may require any investigation and/or active response action, including without limitation active or passive remediation and monitoring or any combination of these activities ("**Corrective Action**"), Tenant shall immediately undertake Corrective Action with respect to such contamination if, and to the extent, required by the governmental authority exercising jurisdiction over the matter. Any Corrective Action performed by Tenant will be performed with Landlord's prior written approval and in accordance with applicable Environmental Laws, at Tenant's sole cost and expense and by an environmental consulting firm (reasonably acceptable to Landlord). Tenant may perform the Corrective Action before or after the expiration or earlier termination of this Lease, to the extent permitted by governmental agencies with jurisdiction over the Premises, the Building and the Project (provided, however, that any Corrective Action performed after the expiration or earlier termination of this Lease shall be subject to the access fee provisions set forth below). If Tenant undertakes or continues Corrective Action after the expiration or earlier termination of this Lease, Landlord, upon being given forty-eight (48) hours' advance notice, may, in Landlord's sole discretion, elect (without limiting any of the Landlord's other rights and remedies under this Lease, at law and/or in equity), to provide, at an "access fee" equal to one hundred fifty percent (150%) of the Monthly Rent in effect for the last month immediately preceding the expiration or earlier termination of this Lease, plus all other sums due under this Lease (prorated for partial months based on days of actual access and only if the Premises cannot be used by a third party during such period), access to the Premises, the Building and the Project as may be requested by Tenant and its consultant to accomplish the Corrective Action. Tenant or its consultant may install, inspect, maintain, replace and operate remediation equipment and conduct the Corrective Action as it considers necessary, subject to Landlord's approval. Tenant and Landlord shall, in good faith, cooperate with each other with respect to any Corrective Action after the expiration or earlier termination of this Lease so as not to interfere unreasonably with the conduct of Landlord's or any third party's business on the Premises, the Building and the Project. Landlord may, in its sole discretion, provide access until Tenant delivers evidence reasonably satisfactory to Landlord that Tenant's Corrective Action activities on the Premises and the Affected Areas satisfy applicable Environmental Laws. It shall be reasonable for Landlord to require Tenant to deliver a "no further action" letter or substantially similar document from the applicable governmental agency. Tenant shall pay the access fee for each day that Landlord is not able to use the Premises and the Affected Areas for such purposes as Landlord reasonably desires. Landlord's "reasonableness" as used in the immediately preceding sentence shall be based on (i) the zoning of the Premises as of the date in question, and (ii) the logical uses of the Premises as of the date in question. If Landlord desires to situate a tenant in the Premises, the Building or the Project and is unable to do so due to the presence of Hazardous Materials in violation of Environmental Laws and caused by Tenant or Tenant Parties, and remediation of the Premises and the Affected Areas is ongoing, Landlord shall be deemed to be unable to use the Premises, the Building and the Project in the way Landlord reasonably desires and Tenant shall be obligated to continue paying the access fee until such time as Landlord is able to situate said tenant in the Premises, the Building and/or the Project. Tenant agrees to install, at Tenant's sole cost and expense, screening around its remediation equipment so as to protect the aesthetic appeal of the Premises, the Building and the Project. Tenant also agrees to use reasonable efforts to locate its remediation and/or monitoring equipment, if any (subject to the requirements of Tenant's consultant and governmental agencies with jurisdiction over the Premises, the Building and the Project) in a location which will allow Landlord, to the extent reasonably practicable, the ability to lease the Premises, the Building and the Project to a subsequent user. Notwithstanding anything above to the contrary, if any clean-up or monitoring procedure is required

by any applicable governmental authorities in, on, under or about the Premises and the Affected Areas during the Lease Term as a consequence of any Hazardous Materials contamination caused by Tenant or Tenant's Parties and the procedure for clean-up is not completed (to the satisfaction of Landlord and/or the governmental authorities) prior to the expiration or earlier termination of this Lease then, at Landlord's election, (i) this Lease shall be deemed renewed for a term commencing on the expiration or earlier termination of this Lease and ending on the date the clean-up procedure is anticipated to be completed; or (ii) Tenant shall be deemed to have impermissibly held over (and Article 16 of this Lease shall apply with full force and effect) and Landlord shall be entitled to all damages directly or indirectly incurred, including, without limitation, damages occasioned by the inability to relet the Premises and/or any other portion of the Building or a reduction of the fair market or rental value of the Premises and/or the Building.

5.2.6 Tenant's Duty to Notify Landlord Regarding Releases. Tenant agrees to promptly notify Landlord of any Release of Hazardous Materials in the Premises, the Building or any other portion of the Project which Tenant becomes aware of during the Term of this Lease, whether caused by Tenant or any other persons or entities. In the event of any release of Hazardous Materials caused by Tenant or any of Tenant's Parties, Landlord shall have the right, but not the obligation, to cause Tenant, at Tenant's sole cost and expense, to immediately take all reasonable steps Landlord deems necessary or appropriate to remediate such Release and prevent any similar future release as required by Environmental Law to the satisfaction of Landlord and Landlord's mortgagee(s). Tenant will, upon the request of Landlord at any time during which Landlord has reason to believe that Tenant is not in compliance with this Section 5.2 (and in any event no earlier than sixty (60) days and no later than thirty (30) days prior to the expiration of this Lease), cause to be performed an environmental audit of the Premises at Tenant's expense by an established environmental consulting firm reasonably acceptable to Landlord. In the event the audit provides that Corrective Action is required then Tenant shall immediately perform the same at its sole cost and expense.

5.2.7 Tenant's Environmental Indemnity. To the fullest extent permitted by law, Tenant agrees to promptly indemnify, protect, defend and hold harmless Landlord and Landlord's members, partners, subpartners, independent contractors, officers, directors, shareholders, employees, agents, successors and assigns (collectively, "**Landlord Parties**") from and against any and all claims, damages, judgments, suits, causes of action, losses, liabilities, penalties, fines, expenses and costs (including, without limitation, clean-up, removal, remediation and restoration costs, sums paid in settlement of claims, attorneys' fees, consultant fees and expert fees and court costs) which arise or result from the Release of Hazardous Materials on, in, under or about the Premises, the Building or any other portion of the Project and which are caused by Tenant or any of Tenant's Parties during the Term of this Lease, including arising from or caused in whole or in part, directly or indirectly, by (i) Tenant's or other Tenant Party's actual, proposed or threatened use, treatment, storage, transportation, holding, existence, disposition, manufacturing, control, management, abatement, removal, handling, transfer, generation or Release (past, present or threatened) of Hazardous Materials to, in, on, under, about or from the Premises and the Affected Areas in violation of Environmental Laws or this Lease; (ii) any past, present or threatened non-compliance or violations of any Environmental Laws in connection with Tenant and/or Tenant's particular use of the Premises and/or the Affected Areas; (iii) personal injury claims; (iv) the payment of any environmental liens, or the disposition, recording, or filing or threatened disposition, recording or filing of any environmental lien encumbering or otherwise affecting the Premises and/or the Affected Areas; (v) diminution in the value of the Premises and/or the Project; (vi) damages for the loss or restriction of use of the Premises and/or the Project, including prospective rent, lost profits and business opportunities; (vii) sums paid in settlement of claims; (viii) reasonable attorneys' fees, consulting fees and expert fees; (ix) the cost of any investigation of site conditions; and (x) the cost of any repair, clean-up or remediation ordered by any governmental or quasi-governmental agency or body. Tenant's obligations hereunder shall include, without limitation, and whether foreseeable or unforeseeable, all costs of any required or necessary repair, cleanup or detoxification or decontamination of the Premises, the Building and/or the Project, or the preparation and implementation of any closure, remedial action or other required plans in connection therewith. For purposes of the indemnity provisions in this Section 5.2, any acts of Tenant and/or Tenant's Parties or others acting for or on behalf of Tenant (whether or not they are negligent, intentional, willful or unlawful) shall be strictly attributable to Tenant. The provisions of this Section 5.2.7 will survive the expiration or earlier termination of this Lease.

5.2.8 Limitations on Tenant's Obligations. Notwithstanding anything to the contrary contained in this Lease, Tenant shall have no liability in connection with any Hazardous Materials (i) in existence on the Premises, Building or Project prior to the Lease Commencement Date or brought onto the Premises, Building or Project after the Lease Commencement Date by any third party other than a Tenant Party or (ii) which may migrate into the Premises through air, water or soil, through no fault of Tenant or any of Tenant's Parties.

5.2.9 Landlord's Termination Option for Certain Environmental Problems. If Hazardous Materials are present at the Premises that are required by Environmental Law to be remediated and Tenant is not responsible therefor pursuant to Section 5.2, Landlord may, at its option, either (i) remediate such Hazardous Materials, in which event this Lease shall continue in full force and effect or (ii) if the estimated cost to remediate such Hazardous Materials exceeds Two Million Dollars ($2,000,000.00) (the "**Threshold Amount**"), give written notice to Tenant, within thirty (30) days after receipt by Landlord of knowledge of the existence of such Hazardous Materials, of Landlord's desire to terminate this Lease as of the date ninety (90) days following the date of such notice. In the event Landlord elects to give such a termination notice, Tenant may, within ten (10) days thereafter, give written notice to Landlord of Tenant's commitment to pay the amount by which the cost of the remediation of such Hazardous Materials exceeds the Threshold Amount. Tenant shall provide Landlord with such funds or satisfactory assurance thereof within thirty (30) days following such commitment. In such event, this Lease shall continue in full force and effect, and Landlord shall proceed to make such remediation as soon as reasonably possible after the required funds are available. If Tenant does not give such notice and provide the required funds or assurance thereof within the time provided, this Lease shall terminate as the date specified in Landlord's termination notice. In the event Landlord elects to not terminate the Lease and Landlord commences remediation, Landlord shall provide Tenant with abatement of Rent as provided in Section 6.7 below, to the extent such work materially interferes with Tenant's conduct of its business in the Premises and Tenant does not occupy all or any material portion of the Premises on account of such work.

5.2.10 Storage Areas. Tenant shall, during the Lease Term, have the right to use (i) one (1) dedicated general storage area in the location depicted on **Exhibit F** and (ii) two (2) dedicated hazardous material storage areas in the locations depicted on **Exhibit G** (collectively, the "**Storage Areas**"). Tenant shall take such Storage Areas in their "as-is" condition and Landlord shall not be obligated to make any improvements or repairs to the same; such improvement/repair responsibility shall be Tenant's responsibility at Tenant's sole cost and expense. The Storage Areas shall be considered part of the Premises under this Lease except that no Rent shall be payable by Tenant for such Storage Areas.

5.3 Odors and Exhaust. Tenant acknowledges that Landlord would not enter into this Lease with Tenant unless Tenant assured Landlord that under no circumstances will the Premises be damaged by any exhaust from Tenant's operations. Landlord and Tenant therefore agree as follows:

5.3.1 Tenant shall not cause or permit (or conduct any activities that would cause) any release of any odors or fumes of any kind from the Premises in violation of Environmental Laws.

5.3.2 As part of Landlord's Work, Landlord shall install a ventilation system that, in Landlord's reasonable judgment, is adequate, suitable, and appropriate to reasonably vent the Premises for a typical lab use in a manner that does not release odors detectable by a typical person and not unreasonably affecting any indoor or outdoor part of the Premises, and Tenant shall vent the Premises through such system. The placement and configuration of all ventilation exhaust pipes, louvers and other equipment shall be subject to Landlord's reasonable approval. Tenant acknowledges Landlord's legitimate desire to maintain the Premises (indoor and outdoor areas) in an odor-free manner, and Landlord may require Tenant to abate and remove all odors in a manner that goes beyond the requirements of applicable laws.

5.3.3 Tenant shall, at Tenant's sole cost and expense, provide odor eliminators and other devices (such as filters, air cleaners, scrubbers and whatever other equipment may in Landlord's judgment be necessary or appropriate from time to time) to completely remove, eliminate and abate any odors, fumes or other substances in Tenant's exhaust stream that, in Landlord's judgment, emanate from the Premises. Any work Tenant performs under this Section 5.3 shall constitute Alterations.

5.3.4 Tenant's responsibility to remove, eliminate and abate odors, fumes and exhaust shall continue throughout the Term.

5.3.5 If Tenant fails to install satisfactory odor control equipment within ten (10) business days after Landlord's demand made at any time, then Landlord may, without limiting Landlord's other rights and remedies, require Tenant to cease and suspend any operations in the Premises that, in Landlord's determination, cause odors, fumes or exhaust.

ARTICLE 6

SERVICES AND UTILITIES

6.1 Standard Tenant Services. Landlord shall provide the following services on all days during the Lease Term, unless otherwise stated below.

6.1.1 Landlord shall provide Tenant controlled HVAC to the office and lab portions of the Premises on a 24/7 basis.

6.1.2 Landlord shall provide adequate electrical wiring and facilities and power for the Premises. Landlord shall designate the electricity utility provider from time to time.

6.1.3 Landlord shall provide nonexclusive automatic passenger elevator service at all times.

6.1.4 Landlord shall provide water in the Common Areas and Premises for lavatory, drinking, laboratory and landscaping purposes. Such cost shall be paid by Tenant as Additional Rent as provided in Article 4.

6.1.5 Landlord shall provide sewer services to the Premises and the Project and trash pick-up from the Project as are reasonable and customary for a biotechnology project.

6.2 Overstandard Tenant Use. Tenant shall not overload the Systems and Equipment serving the Building nor use more than Tenant's Share of available electric power, standby power or HVAC capacity serving the Building.

6.3 Utilities. Tenant shall pay for all water (including the cost to service, repair and replace reverse osmosis, de-ionized and other treated water), gas, heat, light, power, telephone, internet service, cable television, other telecommunications and other utilities supplied to the Premises, together with any fees, surcharges and taxes thereon. If any such utility is not separately metered or submetered to Tenant, Tenant shall pay Tenant's Share of all charges of such utility jointly metered with other premises as Additional Rent (provided, however, if any occupants of the Building are, in Landlord's good faith business judgment, using a disproportionate amount of utilities, Landlord shall exclude such disproportionate use before calculating Tenant’s Share) or, in the alternative, Landlord may, at its option, monitor the usage of such utilities by Tenant and charge Tenant with the actual, documented cost of such utilities, and the cost of purchasing, installing and monitoring such metering equipment shall be paid by Landlord; provided, however, that monitoring equipment for any server room HVAC or any other special equipment installed by Tenant shall be Tenant's responsibility at Tenant's sole cost and expense. To the extent that Tenant uses more than Tenant's Share of any utilities, then Tenant shall pay Landlord Tenant's Share of Operating Expenses to reflect such excess.

6.4 Interruption of Use. Tenant agrees that Landlord shall not be liable for damages, by abatement of Rent or otherwise (subject to Section 6.7), for failure to furnish or delay in furnishing any service (including, but not limited to, any central plant or other lab system, telephone and telecommunication services), or for any diminution in the quality or quantity thereof, when such failure or delay or diminution is occasioned, in whole or in part, by required repairs, replacements, or improvements (in each case scheduled at reasonable times with Tenant, except in cases of emergency), by any strike, lockout or other labor trouble, by inability to secure electricity, gas, water, or other fuel at the Building or Project after reasonable effort to do so, by any accident or casualty beyond Landlord’s reasonable control, by act or default of Tenant or other parties, or by any other cause beyond Landlord's reasonable control; and such failures or delays or diminution shall never be deemed to constitute an eviction or disturbance of Tenant's use and possession of the Premises or, subject to Section 6.7 below, relieve Tenant from paying Rent or performing any of its obligations under this Lease. Furthermore, subject to Section 6.7 below, Landlord shall not be liable under any circumstances for a loss of, or injury to, property (including scientific research and any intellectual property) or for injury to, or interference with, Tenant's business, including, without limitation, loss of profits, however occurring, through or in connection with or incidental to a failure to furnish any of the services or utilities as set forth in this Article 6.

6.5 Additional Services. Landlord shall also have the right, but not the obligation, at Tenant's request, to provide any additional services which may be required by Tenant, including, without limitation, locksmithing and additional repairs and maintenance, provided that Tenant shall pay to Landlord within thirty (30) days after billing and as Additional Rent hereunder, the sum of all costs to Landlord of such additional services plus a five percent (5%) administration fee.

6.6 Janitorial Service. Landlord shall not be obligated to provide any janitorial services to the Premises or replace any light bulbs, lamps, starters and ballasts for lighting fixtures within the Premises. Tenant shall be solely responsible, at Tenant's sole cost and expense, for (i) performing all janitorial services, trash removal and other cleaning of the Premises, and (ii) replacement of all light bulbs, lamps, starters and ballasts for lighting fixtures within the Premises, all as appropriate to maintain the Premises in a first-class manner consistent with the first-class nature of the Building and Project. Such services to be provided by Tenant shall be performed by contractors and pursuant to service contracts approved by Landlord. Tenant shall deposit trash as reasonably required in the area designated by Landlord from time to time. All trash containers must be covered and stored in a manner to prevent the emanation of odors into the Premises or the Project. Landlord shall have the right to inspect the Premises upon reasonable notice to Tenant and to require Tenant to provide additional cleaning, if necessary. In the event Tenant shall fail to provide any of the services described in this Section 6.6 to be performed by Tenant within five (5) days after notice from Landlord, which notice shall not be required in the event of an emergency, Landlord shall have the right to provide such services and any charge or cost incurred by Landlord in connection therewith shall be deemed Additional Rent due and payable by Tenant upon receipt by Tenant of a written statement of cost from Landlord.

6.7 Abatement of Rent When Tenant is Prevented From Using Premises. In the event that Tenant is prevented from using, and does not use, the Premises or any portion thereof, for five (5) consecutive business days (the "**Eligibility Period**") as a result of (i) any repair, maintenance or alteration performed by Landlord after the Lease Commencement Date and required to be performed by Landlord under this Lease or permitted pursuant to Section 5.2.9 above or Section 24.30 below, or (ii) any failure by Landlord to provide to the Premises any of the facilities for essential utilities and services required to be provided in Section 6.1 above, or (iii) any failure by Landlord to provide access to the Premises, then Tenant's obligation to pay Base Rent and Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs shall be abated or reduced, as the case may be, from and after the first (1st) day following the Eligibility Period and continuing until such time that Tenant continues to be so prevented from using, and does not use, the Premises or a portion thereof, in the proportion that the rentable square feet of the portion of the Premises that Tenant is prevented from using, and does not use, bears to the total rentable square feet of the Premises; provided, however, that Tenant shall only be entitled to such abatement of rent if the matter described in clauses (i), (ii) or (iii) of this sentence is within Landlord's reasonable control or caused by Landlord's negligence or willful misconduct or violation of this Lease. To the extent Tenant shall be entitled to abatement of rent because of a damage or destruction pursuant to Article 11 or a taking pursuant to Article 12, then the Eligibility Period shall not be applicable.

ARTICLE 7

REPAIRS

7.1 Tenant's Repairs. Subject to Landlord's repair obligations in Sections 7.2 and 11.1 below, Tenant shall, at Tenant's own expense, keep the Premises, including all improvements, fixtures and furnishings therein, in good order, repair and condition at all times during the Lease Term, which repair obligations shall include, without limitation, the obligation to promptly and adequately repair all damage to the Premises and replace or repair all damaged or broken fixtures and appurtenances, together with all portions of the HVAC, electrical, mechanical plumbing, life safety and lab systems from the point that such systems are located in and solely serves the Premises and all portions of all fume hoods and other exhaust systems that are located in and exclusively serve the Premises (all such systems collectively being referred to as the "**Premises Systems**"), in the condition received. Tenant's obligations shall include restorations, replacements or renewals, including capital expenditures for restorations, replacements or renewals which will have an expected life beyond the Term, when necessary to keep the Premises and all improvements thereon or a part thereof and the Premises Systems in the order, condition and repair received and in compliance with all applicable laws. Except as expressly set forth in this Lease, it is intended by the parties hereto that Landlord shall have no obligation, in any manner whatsoever, to repair or maintain the Premises, the improvements located therein or the equipment therein, or the Premises Systems, all of which obligations are intended to be the expense of Tenant (whether or not such repairs, maintenance or restoration shall have an expected life extending beyond the Term). Tenant's maintenance of the Premises Systems shall comply with the manufacturers' recommended operating and maintenance procedures. Tenant shall enter into and pay for maintenance contracts (in forms satisfactory to Landlord in its reasonable discretion, which may require, without limitation, that any third party contractor provide Landlord with evidence of insurance as required by Landlord) for the Premises Systems in accordance with the manufacturers' recommended operating and maintenance procedures. Such maintenance contracts shall be with reputable contractors, satisfactory to Landlord in its reasonable discretion, who shall have not less than ten (10) years of experience in maintaining such systems in biotechnical facilities. Upon Landlord's request, Tenant shall provide maintenance reports from any such contractors. Tenant shall be solely responsible for the

cost of all improvements or alterations to the Premises or the Premises Systems required by law to the extent required under Article 21. Notwithstanding the foregoing, if Tenant fails to make such repairs, Landlord may, but need not, make such repairs and replacements, and Tenant shall pay Landlord the cost thereof, including a percentage of the cost thereof (to be uniformly established for the Building) sufficient to reimburse Landlord for all overhead, general conditions, fees and other costs or expenses arising from Landlord's involvement with such repairs and replacements forthwith upon being billed for same. In addition, Landlord reserves the right, upon notice to Tenant, to procure and maintain any or all of such service contracts, and if Landlord so elects, Tenant shall reimburse Landlord, upon demand, for the costs thereof.

7.2 Landlord's Repairs. Anything contained in Section 7.1 above to the contrary notwithstanding, and subject to Articles 11 and 12 below, Landlord shall repair and maintain the structural portions of the Building, including the plumbing, HVAC and electrical systems serving the Building and not located in and exclusively serving the Premises; provided, however, to the extent such maintenance and repairs are caused by the act, neglect, fault of or omission of any duty by Tenant, its agents, servants, employees or invitees, Tenant shall pay to Landlord as Additional Rent, the reasonable cost of such maintenance and repairs. Moreover, Landlord shall perform and construct, and Tenant shall have no responsibility to perform or construct, any repair, maintenance or improvements (a) necessitated by the acts of Landlord, (b) for which Landlord has a right of reimbursement from others, and (c) to any portion of the Building outside of the demising walls of the Premises, and the common areas of the Project. Landlord shall not be liable for any failure to make any such repairs, or to perform any maintenance. There shall be no abatement of rent and no liability of Landlord by reason of any injury to or interference with Tenant's business arising from the making of any repairs, alterations or improvements in or to any portion of the Project, Building or the Premises or in or to fixtures, appurtenances and equipment therein. Tenant hereby waives and releases its right to make repairs at Landlord's expense under Sections 1941 and 1942 of the California Civil Code; or under any similar law, statute, or ordinance now or hereafter in effect.

ARTICLE 8

ADDITIONS AND ALTERATIONS

8.1 Landlord's Consent to Alterations. Tenant may not make any improvements, alterations, additions or changes to the Premises (collectively, the "**Alterations**") without first procuring the prior written consent of Landlord to such Alterations, which consent shall be requested by Tenant not less than thirty (30) days prior to the commencement thereof, and which consent shall not be unreasonably withheld or delayed by Landlord; provided, however, Landlord may withhold its consent in its sole and absolute discretion with respect to any Alterations which may materially or adversely affect the structural components of the Building or the Systems and Equipment or which can be seen from outside the Premises ("**Prohibited Alterations**"). Notwithstanding the foregoing to the contrary, prior consent shall not be required with respect to any interior Alterations to the premises which (i) are not Prohibited Alterations, (ii) cost less than Fifty Thousand Dollars ($50,000.00) for any one (1) job and, other than minor electrical, cabling and lighting work (such as adding an outlet or light switch), do not require a building permit, and (iii) are not visible from outside the Premises, so long as the other conditions of this Article 8 are satisfied including, without limitation, conforming to Landlord's rules, regulations and insurance requirements which govern contractors. Tenant shall pay for all overhead, general conditions, fees and other costs and expenses of the Alterations, and shall pay to Landlord a Landlord supervision fee of two percent (2%) of the cost of the Alterations for which Landlord’s consent is required. The construction of the initial improvements to the Premises shall be governed by the terms of the Tenant Work Letter and not the terms of this Article 8.

8.2 Manner of Construction. Landlord may impose, as a condition of its consent to all Alterations or repairs of the Premises, such requirements as Landlord in its reasonable discretion may deem desirable, including, but not limited to, the requirement that Tenant utilize for such purposes only contractors, materials, mechanics and materialmen approved by Landlord; provided, however, Landlord may impose such requirements as Landlord may determine, in its sole and absolute discretion, with respect to any work materially or adversely affecting the structural components of the Building or Systems and Equipment (including designating specific contractors to perform such work). Tenant shall construct such Alterations and perform such repairs in compliance with any and all applicable rules and regulations of any federal, state, county or municipal code or ordinance and pursuant to a valid building permit, issued by the city in which the Building is located, and in conformance with Landlord's construction rules and regulations. Landlord's approval of the plans, specifications and working drawings for Tenant's Alterations shall create no responsibility or liability on the part of Landlord for their completeness, design sufficiency, or compliance with all laws, rules and regulations of governmental agencies or authorities. All work with respect to any Alterations must be done in

a good and workmanlike manner and diligently prosecuted to completion to the end that the Premises shall at all times be a complete unit except during the period of work. Tenant shall cause all Alterations to be performed in such manner as not to obstruct access by any person to the Building or Project or the common areas, and as not to obstruct the business of Landlord or other tenants of the Project, or interfere with the labor force working at the Project. If Tenant makes any Alterations, Tenant agrees to carry "Builder's All Risk" insurance in an amount approved by Landlord covering the construction of such Alterations, and such other insurance as Landlord may require, it being understood and agreed that all of such Alterations shall be insured by Tenant pursuant to Article 10 below immediately upon completion thereof. Landlord may, in its discretion, require Tenant to obtain a lien and completion bond or some alternate form of security satisfactory to Landlord in an amount sufficient to ensure the lien-free completion of such Alterations (the estimated cost of which exceeds Two Hundred Fifty Thousand Dollars ($250,000)) and naming Landlord as a co-obligee. Upon completion of any Alterations, Tenant shall (i) cause a Notice of Completion to be recorded in the office of the Recorder of the county in which the Project is located in accordance with Section 3093 of the Civil Code of the State of California or any successor statute, (ii) deliver to the management office of the Building a reproducible copy of the "as built" drawings of the Alterations, and (iii) deliver to Landlord evidence of payment, contractors' affidavits and full and final waivers of all liens for labor, services or materials.

8.3 Landlord's Property. All Alterations, improvements, fixtures and/or equipment which may be installed or placed in or about the Premises (including, but not limited to, all floor and wall coverings, built-in cabinet work and paneling, sinks and related plumbing fixtures, laboratory benches, exterior venting fume hoods and walk-in freezers and refrigerators, ductwork, conduits, electrical panels and circuits), shall be at the sole cost of Tenant and shall be and become the property of Landlord excluding Tenant's fixtures and equipment, including portable benches (other than ilab benches installed by Landlord as part of the Tenant Improvements and/or if otherwise paid for by Landlord which shall remain Landlord's property), autoclaves, glasswashes, freezers, refrigerators, portable fume hoods, and biosafety cabinets. Furthermore, Landlord may require that Tenant remove any Alterations, improvements, fixtures and/or equipment (other than the Tenant Improvements) upon the expiration or early termination of the Lease Term, and repair any damage to the Premises and Building caused by such removal; provided that Landlord notifies in writing that such removal will be required at the time Landlord provides its consent to such Alterations, improvements, fixtures and/or equipment (or at the time Tenant notifies Landlord with respect to Alterations not requiring Landlord's consent). If Tenant fails to complete such removal and/or to repair by the end of the Lease Term, Landlord may do so and may charge the cost thereof to Tenant. Notwithstanding any other provision of this Article 8 to the contrary, in no event shall Tenant remove any improvement from the Premises as to which Landlord contributed payment, including the Tenant Improvements, without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion.

8.4 Wi-Fi Network. Without limiting the generality of the foregoing, if Tenant desires to install wireless intranet, Internet and communications network ("**Wi-Fi Network**") in the Premises for the use by Tenant and its employees, then the same shall be subject to the provisions of this Section 8.4 (in addition to the other provisions of this Article 8). In the event Landlord consents to Tenant's installation of such Wi-Fi Network, Tenant shall, in accordance with Article 15 below, remove the Wi-Fi Network from the Premises prior to the termination of the Lease. Tenant shall use the Wi-Fi Network so as not to cause any interference to other tenants in the Building or to other tenants at the Project or with any other tenant's communication equipment, and not to damage the Building or Project or interfere with the normal operation of the Building or Project, and Tenant hereby agrees to indemnify, defend and hold Landlord harmless from and against any and all claims, costs, damages, expenses and liabilities (including attorneys' fees) arising out of Tenant's failure to comply with the provisions of this Section 8.4, except to the extent same is caused by the negligence or willful misconduct of Landlord or Landlord's breach of this Lease. Should any interference occur, Tenant shall take all necessary steps as soon as reasonably possible and no later than three (3) calendar days following such occurrence to correct such interference. If such interference continues after such three (3) day period, Tenant shall immediately cease operating such Wi-Fi Network until such interference is corrected or remedied to Landlord's satisfaction. Tenant acknowledges that Landlord has granted and/or may grant telecommunication rights to other tenants and occupants of the Building and Project and to telecommunication service providers and in no event shall Landlord be liable to Tenant for any interference of the same with such Wi-Fi Network. Landlord makes no representation that the Wi-Fi Network will be able to receive or transmit communication signals without interference or disturbance. Tenant shall (i) be solely responsible for any damage caused as a result of the Wi-Fi Network, (ii) promptly pay any tax, license or permit fees charged pursuant to any laws or regulations in connection with the installation, maintenance or use of the Wi-Fi Network and comply with all precautions and safeguards recommended by all governmental authorities, (iii) pay for all necessary repairs, replacements to or maintenance of the Wi-Fi Network, and (iv) be responsible for any modifications, additions or repairs to the Building or Project, including without limitation, Building or Project systems or infrastructure, which

are required by reason of the installation, operation or removal of Tenant's Wi-Fi Network. Should Landlord be required to retain professionals to research any interference issues that may arise and confirm Tenant's compliance with the terms of this Section 8.4, Tenant shall reimburse Landlord for the costs incurred by Landlord in connection with Landlord's retention of such professionals, the research of such interference issues and confirmation of Tenant's compliance with the terms of this Section 8.4 within twenty (20) days after the date Landlord submits to Tenant an invoice for such costs. This reimbursement obligation is in addition to, and not in lieu of, any rights or remedies Landlord may have in the event of a breach or default by Tenant under this Lease.

ARTICLE 9

COVENANT AGAINST LIENS

Tenant has no authority or power to cause or permit any lien or encumbrance of any kind whatsoever, whether created by act of Tenant, operation of law or otherwise, to attach to or be placed upon the Project, Building or Premises, and any and all liens and encumbrances created by Tenant shall attach to Tenant's interest only. Landlord shall have the right at all times to post and keep posted on the Premises any notice which it deems necessary for protection from such liens. Tenant shall not cause or permit any lien of mechanics or materialmen or others to be placed against the Project, the Building or the Premises with respect to work or services claimed to have been performed for or materials claimed to have been furnished to Tenant or the Premises, and, in case of any such lien attaching or notice of any lien, Tenant shall cause it to be immediately released and removed of record. If any such lien is not released and removed within ten (10) business days after notice of such lien is delivered by Landlord to Tenant, then Landlord may, at its option, take all action necessary to release and remove such lien, without any duty to investigate the validity thereof, and all sums, costs and expenses, including reasonable attorneys' fees and costs, incurred by Landlord in connection with such lien shall be deemed Additional Rent under this Lease and shall immediately be due and payable by Tenant. In the event that Tenant leases or finances the acquisition of equipment, furnishings or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code financing statement shall, upon its face or by exhibit thereto, indicate that such financing statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Premises be furnished on a financing statement without qualifying language as to applicability of the lien only to removable personal property located in an identified suite leased by Tenant. Should any holder of a financing statement record or place of record a financing statement that appears to constitute a lien against any interest of Landlord or against equipment that may be located other than within an identified suite leased by Tenant, Tenant shall, within ten (10) days after Landlord's request, cause Tenant's lender to amend such financing statement and any other documents of record to clarify that any liens imposed thereby are not applicable to any interest of Landlord in the Premises.

ARTICLE 10

INDEMNIFICATION AND INSURANCE

10.1 Indemnification and Waiver. Tenant hereby assumes all risk of damage to property and injury to persons, in, on, or about the Premises from any cause whatsoever and agrees that Landlord and the Landlord Parties shall not be liable for, and are hereby released from any responsibility for, any damage to property or injury to persons or resulting from the loss of use thereof, which damage or injury is sustained by Tenant or by other persons claiming through Tenant other than that arising from the negligence or willful misconduct of Landlord or its agents, contractors, licensees or invitees or a violation of Landlord's obligations under this Lease or due to defects in the design or condition of the Building that were not caused by Tenant. Tenant shall indemnify, defend, protect, and hold harmless the Landlord Parties from any and all loss, cost, damage, expense and liability (including without limitation court costs and reasonable attorneys' fees) incurred in connection with or arising from any cause in, on or about the Premises (including, without limitation, Tenant's installation, placement and removal of Alterations, improvements, fixtures and/or equipment in, on or about the Premises), and any acts, omissions or negligence of Tenant or of any person claiming by, through or under Tenant, or of the contractors, agents, servants, employees, licensees or invitees of Tenant or any such person, in, on or about the Premises, the Building and Project; provided, however, that the terms of the foregoing indemnity shall not apply to the negligence, violation of this Lease or willful misconduct of Landlord or defects in the design or condition of the Building that were not caused by Tenant. The provisions of this Section 10.1 shall survive the expiration or sooner termination of this Lease. Notwithstanding anything in this Lease to the contrary, Landlord shall not be liable to Tenant for, and Tenant assumes all risk of, damage to personal property or scientific research or intellectual property, including loss of records kept by Tenant within the Premises, caused by fire, electrical malfunction, gas explosion or water damage

of any type (including broken water lines, malfunctioning fire sprinkler systems, malfunctioning lab systems including any malfunction of the central plant systems, roof leaks or stoppages of lines). Tenant further waives any claim for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property as described above.

10.2 Tenant's Compliance with Landlord's Fire and Casualty Insurance. Tenant shall, at Tenant's expense, comply as to the Premises with all insurance company requirements pertaining to Tenant's particular use of the Premises. If Tenant's conduct or use of the Premises causes any increase in the premium for such insurance policies, then Tenant shall reimburse Landlord for any such increase. Tenant, at Tenant's expense, shall comply with all rules, orders, regulations or requirements of the American Insurance Association (formerly the National Board of Fire Underwriters) and with any similar body to the extent Tenant would be required to comply with the same if they were legal requirements under Article 21.

10.3 Tenant's Insurance. Tenant shall maintain the following coverages in the following amounts (which liability insurance limits may be met by umbrella coverage):

10.3.1 Commercial General Liability Insurance covering the insured against claims of bodily injury, personal injury and property damage arising out of Tenant's operations, assumed liabilities or use of the Premises, including a Broad Form Commercial General Liability endorsement covering the insuring provisions of this Lease and the performance by Tenant of the indemnity agreements set forth in Section 10.1 above, (and liquor liability coverage if alcoholic beverages are served on the Premises), for limits of liability not less than:

Bodily Injury and Property Damage Liability	$5,000,000 each occurrence $8,000,000 annual aggregate
Personal Injury Liability	$5,000,000 each occurrence $8,000,000 annual aggregate 0% Insured's participation

10.3.2 Physical Damage Insurance covering (i) all furniture, trade fixtures, equipment, merchandise and all other items of Tenant's property on the Premises installed by, for, or at the expense of Tenant, and (ii) all other improvements, alterations and additions to the Premises contracted for by Tenant, including any improvements, alterations or additions installed at Tenant's request above the ceiling of the Premises or below the floor of the Premises other than the Tenant Improvements. Such insurance shall be written on a "physical loss or damage" basis under a "special form" policy, for the full replacement cost value new without deduction for depreciation of the covered items and in amounts that meet any co-insurance clauses of the policies of insurance and shall include a vandalism and malicious mischief endorsement, sprinkler leakage coverage and earthquake sprinkler leakage coverage.

10.3.3 Workers' compensation insurance as required by law.

10.3.4 Loss-of-income, business interruption and extra-expense insurance in such amounts as will reimburse Tenant for direct and indirect loss of earnings attributable to all perils commonly insured against by prudent tenants or attributable to prevention of loss of access to the Premises or to the Building as a result of such perils.

10.3.5 If Tenant rents or owns automobiles at the Project, Tenant shall carry comprehensive automobile liability insurance having a combined single limit of not less than Two Million Dollars ($2,000,000.00) per occurrence and insuring Tenant against liability for claims arising out of ownership, maintenance or use of any owned, hired or non-owned automobiles.

10.3.6 Environmental Liability insurance (in form and substance satisfactory to Landlord) with limits of coverage not less than Two Million Dollars ($2,000,000.00) combined per occurrence and in the aggregate insuring against any and all liability with respect to the Premises and all areas appurtenant thereto arising out of any death or injury to any person, damage or destruction of any property, other loss, cost or expense resulting from any release, spill, leak or other contamination of the Premises, or any other property surrounding the Premises attributable to the presence of Hazardous Materials. Upon Landlord's request, Tenant shall also obtain (at Tenant's sole cost and expense) environmental impairment liability insurance and environmental remediation liability insurance (in form and substance (including limits) acceptable to Landlord). If, at any time it reasonably appears to Landlord that Tenant is not

maintaining sufficient insurance or other means of financial capacity to enable Tenant to fulfill its obligations to Landlord hereunder, whether or not then accrued, liquidated, conditional or contingent, Tenant shall procure and thereafter maintain in full force and effect such insurance or other form of financial assurance, with or from companies or persons and in form and substance reasonably acceptable to Landlord, as Landlord may from time to time reasonably request. Without limiting the generality of the foregoing, all such environmental liability insurance shall specifically insure the performance by Tenant of the indemnity provisions set forth in this Lease.

10.3.7 Form of Policies. The minimum limits of policies of insurance required of Tenant under this Lease shall in no event limit the liability of Tenant under this Lease. Such insurance shall: (i) name Landlord, and any other party it so specifies, as an additional insured; (ii) specifically cover the liability assumed by Tenant under this Lease, including, but not limited to, Tenant's obligations under Section 10.1 above; (iii) be issued by an insurance company having a rating of not less than A-VII in Best's Insurance Guide or which is otherwise acceptable to Landlord and licensed to do business in the state in which the Project is located; (iv) be primary insurance as to all claims thereunder and provide that any insurance carried by Landlord is excess and is non-contributing with any insurance requirement of Tenant; (v) to the extent consistent with industry custom and practice, provide that said insurance shall not be canceled or coverage changed unless thirty (30) days' prior written notice shall have been given to Landlord and any mortgagee or ground or underlying lessor of Landlord; (vi) contain a cross-liability endorsement or severability of interest clause acceptable to Landlord; and (vii) with respect to the insurance required in Sections 10.3.1, 10.3.2 and 10.3.4 above, have deductible amounts not exceeding Twenty Thousand Dollars ($20,000.00). Tenant shall deliver such policies or certificates thereof to Landlord on or before the Lease Commencement Date and at least thirty (30) days before the expiration dates thereof. If Tenant shall fail to procure such insurance, or to deliver such policies or certificate, within such time periods, Landlord may, at its option, in addition to all of its other rights and remedies under this Lease, and without regard to any notice and cure periods set forth in Section 19.1, procure such policies for the account of Tenant, and the cost thereof shall be paid to Landlord as Additional Rent within ten (10) days after delivery of bills therefor. Tenant shall have the right to carry the insurance required hereunder in the form of blanket and/or umbrella policies.

10.4 Waiver of Subrogation. Notwithstanding anything to the contrary in this Lease, Landlord and Tenant each hereby waive any right that either may have against the other on account of any loss or damage to their respective property to the extent such loss or damage is insurable under policies of insurance for fire and all risk coverage, theft, or other similar insurance, without regard to the negligence or willful misconduct of the entity so released. All of Landlord’s and Tenant’s repair and indemnity obligations under this Lease shall be subject to the waiver contained in this paragraph.

10.5 Additional Insurance Obligations. Tenant shall carry and maintain during the entire Lease Term, at Tenant's sole cost and expense, increased amounts of the insurance required to be carried by Tenant pursuant to this Article 10, and such other reasonable types of insurance coverage and in such reasonable amounts covering the Premises and Tenant's operations therein, as may be reasonably requested by Landlord so long as such amounts or types are then generally being required by landlords of comparable buildings in the general vicinity of the Building.

ARTICLE 11

DAMAGE AND DESTRUCTION

11.1 Repair of Damage to Premises by Landlord. Tenant shall promptly notify Landlord of any damage to the Premises resulting from fire or any other casualty. If the Premises or any common areas of the Building or Project serving or providing access to the Premises shall be damaged by fire or other casualty, Landlord shall notify Tenant of the estimated date of completion of the repair ("**Estimated Repair Completion Date**"). Landlord shall promptly and diligently, subject to reasonable delays for insurance adjustment or other matters beyond Landlord's reasonable control, and subject to all other terms of this Article 11, restore the Premises, including the Tenant Improvements and Landlord's Work, and such common areas. Such restoration shall be to substantially the same condition of the base, shell, and core of the Premises, the Tenant Improvements, Landlord's Work and common areas prior to the casualty, except for modifications required by zoning and building codes and other laws or by the holder of a mortgage on the Project and/or the Building, or the lessor of a ground or underlying lease with respect to the Building, or any other modifications to the common areas deemed desirable by Landlord, provided access to the Premises and any common restrooms serving the Premises shall not be materially impaired. Upon the occurrence of any damage to the Premises, Tenant shall assign to Landlord (or to any party designated by Landlord) all insurance proceeds payable to Tenant under Tenant's insurance required under Section 10.3 of this Lease attributable to Alterations made by Tenant, and Landlord shall repair any

damage to such Alterations installed in the Premises and shall return such alterations to their original condition; provided that if the costs of such repair of such Alterations by Landlord exceeds the amount of insurance proceeds received by Landlord therefor from Tenant's insurance carrier, as assigned by Tenant, the excess costs of such repairs shall be paid by Tenant to Landlord prior to Landlord's repair of the damage. In connection with such repairs and replacements of any such Alterations, Tenant shall, prior to Landlord's commencement of such improvement work, submit to Landlord, for Landlord's review and approval, all plans, specifications and working drawings relating thereto, and Landlord shall select the contractors to perform such improvement work. Landlord shall not be liable for any inconvenience or annoyance to Tenant or its visitors, or injury to Tenant's business resulting in any way from such damage or the repair thereof; provided however, that if such fire or other casualty shall have damaged the Premises or common areas necessary to Tenant's occupancy, Landlord shall allow Tenant a proportionate abatement of Base Rent and Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs during the time and to the extent the Premises are unusable by Tenant for its business purposes permitted under this Lease, and not occupied by Tenant as a result thereof.

11.2 Landlord's Option to Repair. Notwithstanding Section 11.1 above to the contrary, Landlord may elect not to rebuild and/or restore the Premises, the Building and/or any other portion of the Project and instead terminate this Lease by notifying Tenant in writing of such termination within sixty (60) days after the date Landlord becomes aware of such damage, such notice to include a termination date giving Tenant ninety (90) days to vacate the Premises, but Landlord may so elect only if the Building shall be damaged by fire or other casualty or cause, and the Premises are affected, and one or more of the following conditions is present: (i) repairs cannot reasonably be substantially completed within one hundred eighty (180) days after the date of such damage (when such repairs are made without the payment of overtime or other premiums); (ii) the holder of any mortgage on the Project and/or the Building or ground or underlying lessor with respect to the Project and/or the Building shall require that at least Two Million Five Hundred Thousand Dollars ($2,500,000.00) of the insurance proceeds or any portion thereof be used to retire the mortgage debt, or shall terminate the ground or underlying lease, as the case may be and Landlord elects to terminate the leases of all other tenants of the Building similarly affected by the damage and destruction; or (iii) at least Two Million Five Hundred Thousand Dollars ($2,500,000.00) of the damage is not fully covered, except for deductible amounts, by Landlord's insurance policies and Landlord elects to terminate the leases of all other tenants of the Building similarly affected by the damage and destruction; provided, however, Landlord may not exercise any of the foregoing rights to terminate this Lease if Landlord intends to restore the damage within twelve (12) months of the date of the damage. In addition, if the Premises and the Building is destroyed or damaged to any substantial extent during the last year of the Lease Term, then notwithstanding anything contained in this Article 11, Landlord shall have the option to terminate this Lease by giving written notice to Tenant of the exercise of such option within thirty (30) days after such damage, in which event this Lease shall cease and terminate as of the date of such notice. Upon any such termination of this Lease pursuant to this Section 11.2, Tenant shall pay the Base Rent and Additional Rent, properly apportioned up to such date of termination, and both parties hereto shall thereafter be discharged of all further obligations under this Lease, except for those obligations which expressly survive the expiration or earlier termination of the Lease Term.

11.3 Waiver of Statutory Provisions. The provisions of this Lease, including this Article 11, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, all or any part of the Premises, the Building or any other portion of the Project, and any statute or regulation of the state in which the Project is located, including, without limitation, Sections 1932(2) and 1933(4) of the California Civil Code, with respect to any rights or obligations concerning damage or destruction in the absence of an express agreement between the parties, and any other statute or regulation, now or hereafter in effect, shall have no application to this Lease or any damage or destruction to all or any part of the Premises, the Building or any other portion of the Project.

11.4 Tenant's Termination Rights Following Damage. Tenant, at any time after the damage until such rebuilding is completed, may terminate this Lease by delivering written notice to Landlord of such termination, in which event this Lease shall terminate as of the date of the giving of such notice, in any of the following circumstances: (i) Landlord fails to restore the Premises (including reasonable means of access thereto) within a period which is sixty (60) days longer than the Estimated Repair Completion Date stated in Landlord's notice to Tenant as the estimated rebuilding period (which sixty (60) day period shall be deemed extended due to Force Majeure delays (not to exceed thirty (30) days) and/or delays caused by Tenant); (ii) the Estimated Completion Repair Date is more than two hundred ten (210) days following the damage; or (iii) material damage to a material portion of the Premises occurs within the last year of the Term to the extent that in Tenant's judgment it cannot effectively operate its business in the Premises.

ARTICLE 12

CONDEMNATION

12.1 Permanent Taking. If the whole or any substantial part of the Premises, Building or Project shall be taken by power of eminent domain or condemned by any competent authority for any public or quasi-public use or purpose, or if any adjacent property or street shall be so taken or condemned, or reconfigured or vacated by such authority in such manner as to require the use, reconstruction or remodeling of any substantial part of the Premises, Building or Project, or if Landlord shall grant a deed or other instrument in lieu of such taking by eminent domain or condemnation, Landlord shall have the option to terminate this Lease upon ninety (90) days' notice, provided such notice is given no later than one hundred eighty (180) days after the date of such taking, condemnation, deed or other instrument. If more than ten percent (10%) of the rentable square feet of the Premises is taken, or if any of the Premises is taken that would materially interfere with Tenant's use of the Premises, or if access to the Premises is substantially impaired due to a taking, Tenant shall have the option to terminate this Lease upon ninety (90) days' notice, provided such notice is given no later than one hundred eighty (180) days after the date of such taking. Landlord shall be entitled to receive the entire award or payment in connection therewith, except that Tenant shall have the right to file any separate claim available to Tenant for any taking of Tenant's personal property and fixtures belonging to Tenant and removable by Tenant upon expiration of the Lease Term pursuant to the terms of this Lease, for the unamortized value of any improvements to the Premises paid for by Tenant and for relocation expenses, so long as such claim is payable separately to Tenant. All Rent shall be apportioned as of the date of such termination, or the date of such taking, whichever shall first occur. If any part of the Premises shall be taken, and this Lease shall not be so terminated, the Base Rent and Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs shall be proportionately abated. Tenant hereby waives any and all rights it might otherwise have pursuant to Section 1265.130 of The California Code of Civil Procedure.

12.2 Temporary Taking. Notwithstanding anything to the contrary contained in this Article 12, in the event of a temporary taking of all or any portion of the Premises for a period of one hundred and eighty (180) days or less, then this Lease shall not terminate but the Base Rent and Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs shall be abated for the period of such taking in proportion to the ratio that the amount of rentable square feet of the Premises taken bears to the total rentable square feet of the Premises. Landlord shall be entitled to receive the entire award made in connection with any such temporary taking.

ARTICLE 13

COVENANT OF QUIET ENJOYMENT

Landlord covenants that Tenant, on paying the Rent, charges for services and other payments herein reserved and on keeping, observing and performing all the other terms, covenants, conditions, and agreements herein contained on the part of Tenant to be kept, observed and performed, shall, during the Lease Term, peaceably and quietly have, hold and enjoy the Premises subject to the terms, covenants, conditions, and agreements hereof without interference by any persons lawfully claiming by or through Landlord. The foregoing covenant is in lieu of any other covenant express or implied.

ARTICLE 14

ASSIGNMENT AND SUBLETTING

14.1 Transfers. Tenant shall not, without the prior written consent of Landlord (not to be unreasonably withheld), assign, mortgage, pledge, hypothecate, encumber, or permit any lien to attach to, or otherwise transfer, this Lease or any interest hereunder, permit any assignment or other such foregoing transfer of this Lease or any interest hereunder by operation of law, sublet the Premises or any part thereof, or permit the use of the Premises by any persons other than Tenant and its employees and contractors (all of the foregoing are hereinafter sometimes referred to collectively as "**Transfers**" and any person to whom any Transfer is made or sought to be made is hereinafter sometimes referred to as a "**Transferee**"). If Tenant shall desire Landlord's consent to any Transfer, Tenant shall notify Landlord in writing, which notice (the "**Transfer Notice**") shall include (i) the proposed effective date of the Transfer, which shall not be less than thirty (30) days nor more than one hundred eighty (180) days after the date of delivery of the Transfer Notice, (ii) a description of the portion of the Premises to be transferred (the "**Subject Space**"), (iii) all of the terms of the proposed Transfer, the name and address of the proposed Transferee, and a copy of all existing and/or proposed

documentation pertaining to the proposed Transfer, (iv) current financial statements of the proposed Transferee certified by an officer, partner or owner thereof, (v) a list of Hazardous Materials, certified by the proposed Transferee to be true and correct, that the proposed Transferee intends to use or store in the Premises, and (vi) such other information as Landlord may reasonably require. Any Transfer made without Landlord's prior written consent shall, at Landlord's option, be null, void and of no effect, and shall, at Landlord's option, constitute a default by Tenant under this Lease after the expiration of applicable notice and cure periods. Whether or not Landlord shall grant consent, within thirty (30) days after written request by Landlord, Tenant shall pay to Landlord up to Two Thousand Five Hundred Dollars ($2,500.00) to reimburse Landlord for its review and processing fees, and any legal fees incurred by Landlord in connection with Tenant's proposed Transfer.

14.2 Landlord's Consent. Landlord shall not unreasonably withhold its consent to any proposed Transfer on the terms specified in the Transfer Notice. In no event shall Landlord be deemed to be unreasonable for declining to consent to a Transfer to a transferee jeopardizing directly or indirectly the status of Landlord or any of Landlord's affiliates as a Real Estate Investment Trust under the Internal Revenue Code of 1986 (as the same may be amended from time to time, the "**Revenue Code**"). Notwithstanding anything contained in this Lease to the contrary, (w) no Transfer shall be consummated on any basis such that the rental or other amounts to be paid by the occupant, assignee, manager or other transferee thereunder would be based, in whole or in part, on the income or profits derived by the business activities of such occupant, assignee, manager or other transferee; (x) Tenant shall not consummate a Transfer with any person in which Landlord owns an interest, directly or indirectly (by applying constructive ownership rules set forth in Section 856(d)(5) of the Revenue Code); and (y) Tenant shall not consummate a Transfer with any person or in any manner that could cause any portion of the amounts received by Landlord pursuant to this Lease or any sublease, license or other arrangement for the right to use, occupy or possess any portion of the Premises to fail to qualify as "rents from real property" within the meaning of Section 856(d) of the Revenue Code, or any similar or successor provision thereto or which could cause any other income of Landlord to fail to qualify as income described in Section 856(c)(2) of the Revenue Code. The parties hereby agree that it shall be reasonable under this Lease and under any applicable law for Landlord to withhold consent to any proposed Transfer where one or more of the following apply, without limitation as to other reasonable grounds for withholding consent:

14.2.1 The Transferee is of a character or reputation or engaged in a business which is not consistent with the quality of the Building or Project;

14.2.2 The Transferee intends to use the Subject Space for purposes which are not permitted under this Lease;

14.2.3 The Transferee is either a governmental agency or instrumentality thereof;

14.2.4 The Transfer will result in more than a reasonable and safe number of occupants per floor within the Subject Space;

14.2.5 The Transferee is not a party of reasonable financial worth and/or financial stability in light of the responsibilities involved under the Lease or the applicable sublease on the date consent is requested;

14.2.6 The proposed Transfer would cause Landlord to be in violation of another lease or agreement to which Landlord is a party, or would give an occupant of the Project a right to cancel its lease;

14.2.7 The terms of the proposed Transfer will allow the Transferee to exercise a right of renewal, right of expansion, right of first offer, or other similar right held by Tenant (or will allow the Transferee to occupy space leased by Tenant pursuant to any such right); or

14.2.8 Either the proposed Transferee, or any person or entity which directly or indirectly, controls, is controlled by, or is under common control with, the proposed Transferee, (i) occupies space in the Project at the time of the request for consent, (ii) is negotiating with Landlord to lease space in the Project at such time, or (iii) has negotiated with Landlord during the one (1)-month period immediately preceding the Transfer Notice, in each case if Landlord then has suitable space available to such proposed Transferee.

If Landlord consents to any Transfer pursuant to the terms of this Section 14.2 (and does not exercise any recapture rights Landlord may have under Section 14.4 below), Tenant may within six (6) months after Landlord's

consent, enter into such Transfer of the Premises or portion thereof, upon substantially the same terms and conditions as are set forth in the Transfer Notice furnished by Tenant to Landlord pursuant to Section 14.1 above, provided that if there are any changes in the terms and conditions from those specified in the Transfer Notice (i) such that Landlord would initially have been entitled to refuse its consent to such Transfer under this Section 14.2, or (ii) which would cause the proposed Transfer to be more favorable to the Transferee than the terms set forth in Tenant's original Transfer Notice, Tenant shall again submit the Transfer to Landlord for its approval and other action under this Article 14 (including Landlord's right of recapture, if any, under Section 14.4 of this Lease).

14.3 Transfer Premium. If Landlord consents to a Transfer, as a condition thereto which the parties hereby agree is reasonable, Tenant shall pay to Landlord fifty percent (50%) of any Transfer Premium received by Tenant from such Transferee. "**Transfer Premium**" shall mean all rent, additional rent or other consideration payable by such Transferee in excess of the Rent and Additional Rent payable by Tenant under this Lease on a per rentable square foot basis if less than all of the Premises is transferred, after deducting the reasonable expenses incurred by Tenant for (i) any reasonable changes, alterations and improvements to the Premises in connection with the Transfer (but only to the extent approved by Landlord), and (ii) any reasonable brokerage commissions and attorney's fees in connection with the Transfer (collectively, the "**Subleasing Costs**"). Transfer Premium shall also include, but not be limited to, key money and bonus money paid by Transferee to Tenant in connection with such Transfer, and any payment in excess of fair market value for services rendered by Tenant to Transferee or for assets, fixtures, inventory, equipment, or furniture transferred by Tenant to Transferee in connection with such Transfer.

14.4 Landlord's Option as to Subject Space. Notwithstanding anything to the contrary contained in this Article 14, if Tenant requests Landlord's consent to Transfer that is an assignment of this Lease or a Transfer that is a sublease of two (2) or more full floors of the Premises for substantially the remaining Term, then Landlord shall have the option, by giving written notice to Tenant within thirty (30) days after receipt of any Transfer Notice, to recapture the Subject Space. Such recapture notice shall terminate this Lease with respect to the Subject Space as of the date stated in the Transfer Notice as the effective date of the proposed Transfer. If this Lease is terminated with respect to less than the entire Premises, the Rent and the then L-C Amount reserved herein shall be prorated on the basis of the rentable square feet retained by Tenant in proportion to the rentable square feet contained in the Premises, and this Lease as so amended shall continue thereafter in full force and effect, and upon request of either party, the parties shall execute written confirmation of the same; provided, however, that in no event shall the L-C Amount be reduced below two hundred percent (200%) of the Base Rent payable by Tenant for the last full calendar month of the Lease Term for such reduced Premises leased by Tenant after such recapture by Landlord. If Landlord declines, or fails to elect in a timely manner to recapture the Subject Space under this Section 14.4, then, provided Landlord has consented to the proposed Transfer, Tenant shall be entitled to proceed to transfer the Subject Space to the proposed Transferee, subject to provisions of the last paragraph of Section 14.2 above.

14.5 Effect of Transfer. If Landlord consents to a Transfer: (i) the terms and conditions of this Lease shall in no way be deemed to have been waived or modified; (ii) such consent shall not be deemed consent to any further Transfer by either Tenant or a Transferee; (iii) Tenant shall deliver to Landlord, promptly after execution, an original executed copy of all documentation pertaining to the Transfer in form reasonably acceptable to Landlord; and (iv) no Transfer relating to this Lease or agreement entered into with respect thereto, whether with or without Landlord's consent, shall relieve Tenant or any guarantor of the Lease from liability under this Lease. Landlord or its authorized representatives shall have the right at all reasonable times to audit the books, records and papers of Tenant relating to any Transfer, and shall have the right to make copies thereof. If the Transfer Premium respecting any Transfer shall be found understated, Tenant shall, within thirty (30) days after demand, pay the deficiency and Landlord's costs of such audit.

14.6 Additional Transfers. Subject to Section 14.7 below, for purposes of this Lease, the term "Transfer" shall also include: (i) if Tenant is a partnership or limited liability company, the withdrawal or change, voluntary, involuntary or by operation of law, of more than fifty percent (50%) of the partners or members, or transfer of more than fifty percent (50%) of the partnership or membership interests, within a twelve (12)-month period, or the dissolution of the partnership without immediate reconstitution thereof; and (ii) if Tenant is a closely held corporation (i.e., whose stock is not publicly held and not traded through an exchange or over the counter), (A) the dissolution, merger, consolidation or other reorganization of Tenant, or (B) the sale or other transfer of more than an aggregate of fifty percent (50%) of the voting shares of Tenant (other than to immediate family members by reason of gift or death or to current shareholders), within a twelve (12)-month period. Notwithstanding the foregoing, the sale, issuance or transfer of Tenant's capital stock or membership interests pursuant to an equity financing or public offering shall not be deemed an assignment, subletting or any other Transfer of this Lease or the Premises.

14.7 Affiliated Companies/Restructuring of Business Organization. The assignment or subletting by Tenant of all or any portion of this Lease or the Premises to (i) a parent or subsidiary of Tenant, or (ii) any person or entity which controls, is controlled by or under common control with Tenant, or (iii) any entity which purchases all or substantially all of the assets or stock of Tenant in one or a series of transactions, (iv) any entity into which Tenant is merged or consolidated, or (v) in connection with any deemed Transfer due to a transfer of shares or membership interests under Section 14.6 above where Tenant remains the tenant under this Lease (all such persons or entities described in (i), (ii), (iii) and (iv) being sometimes hereinafter referred to as "**Affiliates**") shall not be deemed a Transfer under this Article 14, provided that:

14.7.1 Any such Affiliate was not formed as a subterfuge to avoid the obligations of this Article 14;

14.7.2 Tenant gives Landlord prior written notice of any such assignment or sublease to an Affiliate;

14.7.3 Any such Affiliate (or Tenant, if Tenant is to remain the tenant under this Lease) has, following the effective date of any such assignment or sublease, a tangible net worth, in the aggregate, computed in accordance with generally accepted accounting principles, which is sufficient (in Landlord's reasonable good faith opinion) to meet the obligations of Tenant under this Lease or the applicable Transfer document;

14.7.4 Any such assignment or sublease, exclusive of such Transfer as may occur pursuant to Section 14.6, shall be subject to all of the terms and provisions of this Lease, and such assignee or sublessee shall assume, in a written document reasonably satisfactory to Landlord and delivered to Landlord upon or prior to the effective date of such assignment or sublease, all the obligations of Tenant under this Lease; and

14.7.5 Tenant shall remain fully liable for all obligations to be performed by Tenant under this Lease.

An Affiliate that is an assignee of Original Tenant's entire interest in this Lease may be referred to as an "**Affiliate Assignee**."

ARTICLE 15

SURRENDER; OWNERSHIP AND REMOVAL OF PERSONAL PROPERTY

15.1 Surrender of Premises. No act or thing done by Landlord or any agent or employee of Landlord during the Lease Term shall be deemed to constitute an acceptance by Landlord of a surrender of the Premises unless such intent is specifically acknowledged in a writing signed by Landlord. The delivery of keys to the Premises to Landlord or any agent or employee of Landlord shall not constitute a surrender of the Premises or effect a termination of this Lease, whether or not the keys are thereafter retained by Landlord, and notwithstanding such delivery Tenant shall be entitled to the return of such keys at any reasonable time upon request until this Lease shall have been properly terminated. The voluntary or other surrender of this Lease by Tenant, whether accepted by Landlord or not, or a mutual termination hereof, shall not work a merger, and at the option of Landlord shall operate as an assignment to Landlord of all subleases or subtenancies affecting the Premises.

15.2 Removal of Tenant Property by Tenant. Upon the expiration of the Lease Term, or upon any earlier termination of this Lease, Tenant shall, subject to the provisions of this Article 15, quit and surrender possession of the Premises to Landlord in as good order and condition as when Tenant took possession and as thereafter improved by Landlord and/or Tenant, reasonable wear and tear, casualties, alterations or other interior improvements which Tenant is permitted to surrender at the termination of this Lease and repairs which are not the responsibility of Tenant hereunder excepted. Tenant's restoration obligations may also include satisfying Landlord's commercially reasonable procedures regarding the cleaning of any lab systems and sealing any connection points of any such lab systems to the Premises, all at Tenant's sole cost and expense. At least ten (10) days prior to Tenant's surrender of possession of any part of the Premises, Tenant shall provide Landlord with (a) a facility decommissioning and Hazardous Materials closure plan for the Premises ("**Exit Survey**") prepared by an independent third party reasonably acceptable to Landlord, and (b) written evidence of all appropriate governmental releases obtained by Tenant in accordance with applicable laws, including laws pertaining to the surrender of the Premises. In addition, Tenant agrees to remain responsible after the surrender of the Premises for the remediation of any recognized environmental conditions set forth in the Exit Survey and caused by Tenant or any Tenant's Parties and compliance with any recommendations set forth in the Exit Survey. Tenant shall, upon the expiration or earlier termination of this Lease, furnish to Landlord evidence that Tenant has closed all

governmental permits and licenses, if any, issued in connection with Tenant's or Tenant's Parties' activities at the Premises. If any such governmental permits or licenses have been issued and Tenant fails to provide evidence of such closure on or before the expiration or earlier termination of this Lease, then until Tenant does so, the holdover provisions of Article 16 of this Lease shall apply if a third party is unable to use the Premises as a result thereof. Upon such expiration or termination, Tenant shall, without expense to Landlord, remove or cause to be removed from the Premises all telephone, data, and other cabling and wiring (including any cabling and wiring associated with the Wi-Fi Network, if any) installed or caused to be installed by Tenant (including any cabling and wiring, installed above the ceiling of the Premises or below the floor of the Premises), all debris and rubbish, and such items of furniture, equipment, free-standing cabinet work, and other articles of personal property owned by Tenant or installed or placed by Tenant at its expense in the Premises, and such similar articles of any other persons claiming under Tenant, as Landlord may, in its sole discretion, require to be removed, and Tenant shall repair at its own expense all damage to the Premises and Building resulting from such removal. In no event shall Tenant be required to remove (and Tenant shall not remove) any of the Tenant Improvements or Landlord's Work installed by Landlord pursuant to **Exhibit B**. Tenant's obligations under this Section 15.2 shall survive the expiration or earlier termination of this Lease.

ARTICLE 16

HOLDING OVER

If Tenant holds over after the expiration of the Lease Term hereof, with or without the express or implied consent of Landlord, such tenancy shall not constitute a renewal hereof or an extension for any further term, and in such case Base Rent shall be payable at a monthly rate (prorated for partial months) equal to one hundred fifty percent (150%) of the Base Rent applicable during the last rental period of the Lease Term under this Lease. Such tenancy shall be subject to every other term, covenant and agreement contained herein. Landlord hereby expressly reserves the right to require Tenant to surrender possession of the Premises to Landlord as provided in this Lease upon the expiration or other termination of this Lease. The provisions of this Article 16 shall not be deemed to limit or constitute a waiver of any other rights or remedies of Landlord provided herein or at law. If Tenant fails to surrender the Premises upon the termination or expiration of this Lease, in addition to any other liabilities to Landlord accruing therefrom, Tenant shall protect, defend, indemnify and hold Landlord harmless from all loss, costs (including reasonable attorneys' fees) and liability resulting from such failure, including, without limiting the generality of the foregoing, any claims made by any succeeding tenant founded upon such failure to surrender, and any lost profits to Landlord resulting therefrom.

ARTICLE 17

ESTOPPEL CERTIFICATES

Within ten (10) days following a request in writing by Landlord, Tenant shall execute and deliver to Landlord an estoppel certificate, which, as submitted by Landlord, shall be in the form as may be reasonably required by any prospective mortgagee or purchaser of the Project (or any portion thereof), indicating therein any exceptions thereto that may exist at that time, and shall also contain any other information reasonably requested by Landlord or Landlord's mortgagee or Landlord's prospective mortgagees. Tenant shall execute and deliver whatever other instruments may be reasonably required for such purposes. Failure of Tenant to timely execute and deliver such estoppel certificate or other instruments shall constitute an acceptance of the Premises and an acknowledgment by Tenant that statements included in the estoppel certificate are true and correct, without exception. Failure by Tenant to so deliver such estoppel certificate shall be a material default of the provisions of this Lease after the expiration of applicable notice and cure periods. In addition, Tenant shall be liable to Landlord, and shall indemnify Landlord from and against any loss, cost, damage or expense, incidental, consequential, or otherwise, including attorneys' fees, arising or accruing directly or indirectly, from any failure of Tenant to execute or deliver to Landlord any such estoppel certificate. Upon request from time to time, which request may only be made if Landlord is selling or financing the Building and if Tenant is no longer publicly traded, Tenant agrees to provide to Landlord, within ten (10) days after Landlord's delivery of written request therefor, current financial statements for Tenant, dated no earlier than one (1) year prior to such written request, certified as accurate by Tenant or, if available, audited financial statements prepared by an independent certified public accountant with copies of the auditor's statement. If any guaranty is executed in connection with this Lease, Tenant also agrees to deliver to Landlord, within ten (10) days after Landlord's delivery of written request therefor, current financial statements of the guarantor in a form consistent with the foregoing criteria. Landlord shall hold all such statements confidentially.

ARTICLE 18

SUBORDINATION

This Lease is subject and subordinate to all present and future ground leases of the Project and to the lien of any mortgages or trust deeds, now or hereafter in force against the Project, if any, and to all renewals, extensions, modifications, consolidations and replacements thereof, and to all advances made or hereafter to be made upon the security of such mortgages or trust deeds, unless the holders of such mortgages or trust deeds, or the lessors under such ground lease, require in writing that this Lease be superior thereto; provided, however, that a condition precedent to the subordination of this Lease to any future ground or underlying lease or to the lien of any future mortgage or deed of trust is that Landlord shall obtain for the benefit of Tenant a commercially reasonable subordination, non-disturbance and attornment agreement from the landlord or lender of such future instrument. Tenant covenants and agrees in the event any proceedings are brought for the foreclosure of any such mortgage, or if any ground lease is terminated, to attorn, without any deductions or set-offs whatsoever, to the purchaser upon any such foreclosure sale, or to the lessor of such ground lease, as the case may be, if so requested to do so by such purchaser or lessor, and to recognize such purchaser or lessor as the lessor under this Lease. Tenant shall, within ten (10) days of request by Landlord, execute such further instruments or assurances as Landlord may reasonably deem necessary to evidence or confirm the subordination or superiority of this Lease to any such mortgages, trust deeds, or ground leases. Tenant waives the provisions of any current or future statute, rule or law which may give or purport to give Tenant any right or election to terminate or otherwise adversely affect this Lease and the obligations of the Tenant hereunder in the event of any foreclosure proceeding or sale. Within sixty (60) days after the execution of this Lease (or as soon thereafter as reasonably possible), Landlord shall obtain a non-disturbance agreement from the holder of any pre-existing mortgage encumbering the Building in the form attached hereto as **Exhibit E**, which Tenant agrees to promptly execute.

ARTICLE 19

TENANT'S DEFAULTS; LANDLORD'S REMEDIES

19.1 Events of Default by Tenant. All covenants and agreements to be kept or performed by Tenant under this Lease shall be performed by Tenant at Tenant's sole cost and expense and without any reduction of Rent. The occurrence of any of the following shall constitute a default of this Lease by Tenant:

19.1.1 Any failure by Tenant to pay any Rent, Additional Rent or any other charge required to be paid under this Lease, or any part thereof, when due; and the continuation of such failure for more than five (5) days following Tenant's receipt of written notice of delinquency; provided, however, that any such notice shall be in lieu of, and not in addition to, any notice required under California Code of Civil Procedure Section 1161 and any similar or successor law; or

19.1.2 Any failure by Tenant to observe or perform any other provision, covenant or condition of this Lease to be observed or performed by Tenant (other than the payment of Rent or Additional Rent) where such failure continues for thirty (30) days after written notice thereof from Landlord to Tenant; provided however, that any such notice shall be in lieu of, and not in addition to, any notice required under California Code of Civil Procedure Section 1161 or any similar or successor law; and provided further that if the nature of such default is such that the same cannot reasonably be cured within a thirty (30)-day period, Tenant shall not be deemed to be in default if it diligently commences such cure within such period and thereafter diligently proceeds to rectify and cure said default as soon as possible; or

19.1.3 Abandonment of the Premises by Tenant.

19.1.4 Tenant makes an assignment for the benefit of creditors.

19.1.5 A receiver, trustee or custodian is appointed to or does take title, possession or control of all or substantially all of Tenant's assets.

19.1.6 Tenant files a voluntary petition under the United States Bankruptcy Code or any successor statute (as the same may be amended from time to time, (the "**Bankruptcy Code**") or an order for relief is entered against Tenant pursuant to a voluntary or involuntary proceeding commenced under any chapter of the Bankruptcy Code.

19.1.7 Any involuntary petition is filed against Tenant under any chapter of the Bankruptcy Code and is not dismissed within one hundred twenty (120) days.

19.1.8 Intentionally Omitted.

19.1.9 Tenant fails to deliver an estoppel certificate in accordance with Article 17 within three (3) days after written notice of such failure.

19.1.10 Tenant's interest in this Lease is attached, executed upon or otherwise judicially seized and such action is not released within one hundred twenty (120) days of the action.

19.2 Landlord's Remedies Upon Default. Upon the occurrence of any such default by Tenant, Landlord shall have, in addition to any other remedies available to Landlord at law or in equity, the option to pursue any one or more of the following remedies, each and all of which shall be cumulative and nonexclusive, without any notice or demand whatsoever.

19.2.1 Terminate this Lease, in which event Tenant shall immediately surrender the Premises to Landlord, and if Tenant fails to do so, Landlord may, without prejudice to any other remedy which it may have for possession or arrearages in rent, enter upon and take possession of the Premises and expel or remove Tenant and any other person who may be occupying the Premises or any part thereof, without being liable for prosecution or any claim for damages therefor; and Landlord may recover from Tenant the following:

(i) the worth at the time of award of any unpaid rent which has been earned at the time of such termination; plus

(ii) the worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(iii) the worth at the time of award of the amount by which the unpaid rent for the balance of the Lease Term after the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(iv) any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, specifically including but not limited to, brokerage commissions and advertising expenses incurred, expenses of remodeling the Premises or any portion thereof for a new tenant, whether for the same or a different use, and any special concessions made to obtain a new tenant; plus

(v) at Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable law.

The term "rent" as used in this Section 19.2 shall be deemed to be and to mean all sums of every nature required to be paid by Tenant pursuant to the terms of this Lease, whether to Landlord or to others. As used in Sections 19.2.1(i) and (ii), above, the "worth at the time of award" shall be computed by allowing interest at the Interest Rate set forth in Section 4.5 above. As used in Section 19.2.1(iii) above, the "worth at the time of award" shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus one percent (1%).

19.2.2 Landlord shall have the remedy described in California Civil Code Section 1951.4 (lessor may continue lease in effect after lessee's breach and abandonment and recover rent as it becomes due, if lessee has the right to sublet or assign, subject only to reasonable limitations). Accordingly, if Landlord does not elect to terminate this Lease on account of any default by Tenant, Landlord may, from time to time, without terminating this Lease, enforce all of its rights and remedies under this Lease, including the right to recover all rent as it becomes due.

19.2.3 Landlord may, but shall not be obligated to, make any such payment or perform or otherwise cure any such obligation, provision, covenant or condition on Tenant's part to be observed or performed (and may enter

the Premises for such purposes). In the event of Tenant's failure to perform any of its obligations or covenants under this Lease, and such failure to perform poses a material risk of injury or harm to persons or damage to or loss of property, then Landlord shall have the right to cure or otherwise perform such covenant or obligation at any time after such failure to perform by Tenant, whether or not any such notice or cure period set forth in Section 19.1 above has expired. Any such actions undertaken by Landlord pursuant to the foregoing provisions of this Section 19.2.3 shall not be deemed a waiver of Landlord's rights and remedies as a result of Tenant's failure to perform and shall not release Tenant from any of its obligations under this Lease.

19.3 Payment by Tenant. Tenant shall pay to Landlord, within ten (10) days after delivery by Landlord to Tenant of statements therefor: (i) sums equal to expenditures reasonably made and obligations incurred by Landlord in connection with Landlord's performance or cure of any of Tenant's obligations pursuant to the provisions of Section 19.2.3 above; and (ii) sums equal to all expenditures made and obligations incurred by Landlord in collecting or attempting to collect the Rent or in enforcing or attempting to enforce any rights of Landlord under this Lease or pursuant to law, including, without limitation, all legal fees and other amounts so expended. Tenant's obligations under this Section 19.3 shall survive the expiration or sooner termination of the Lease Term.

19.4 Sublessees of Tenant. If Landlord elects to terminate this Lease on account of any default by Tenant, as set forth in this Article 19, Landlord shall have the right to terminate any and all subleases, licenses, concessions or other consensual arrangements for possession entered into by Tenant and affecting the Premises or may, in Landlord's sole discretion, succeed to Tenant's interest in such subleases, licenses, concessions or arrangements. If Landlord elects to succeed to Tenant's interest in any such subleases, licenses, concessions or arrangements, Tenant shall, as of the date of notice by Landlord of such election, have no further right to or interest in the rent or other consideration receivable thereunder.

19.5 Waiver of Default. No waiver by Landlord of any violation or breach by Tenant of any of the terms, provisions and covenants herein contained shall be deemed or construed to constitute a waiver of any other or later violation or breach by Tenant of the same or any other of the terms, provisions, and covenants herein contained. Forbearance by Landlord in enforcement of one or more of the remedies herein provided upon a default by Tenant shall not be deemed or construed to constitute a waiver of such default. The acceptance of any Rent hereunder by Landlord following the occurrence of any default, whether or not known to Landlord, shall not be deemed a waiver of any such default, except only a default in the payment of the Rent so accepted.

19.6 Efforts to Relet. For the purposes of this Article 19, Tenant's right to possession shall not be deemed to have been terminated by efforts of Landlord to relet the Premises, by its acts of maintenance or preservation with respect to the Premises, or by appointment of a receiver to protect Landlord's interests hereunder. The foregoing enumeration is not exhaustive, but merely illustrative of acts which may be performed by Landlord without terminating Tenant's right to possession.

19.7 Bankruptcy. In the event a debtor, trustee or debtor in possession under the Bankruptcy Code, or another person with similar rights, duties and powers under any other applicable laws, proposes to cure any default under this Lease or to assume or assign this Lease and is obliged to provide adequate assurance to Landlord that (a) a default shall be cured, (b) Landlord shall be compensated for its damages arising from any breach of this Lease and (c) future performance of Tenant's obligations under this Lease shall occur, then such adequate assurances shall include any or all of the following, as designated by Landlord in its sole and absolute discretion:

(i) Those acts specified in the Bankruptcy Code or other applicable laws as included within the meaning of "adequate assurance," even if this Lease does not concern a shopping center or other facility described in such applicable laws;

(ii) A prompt cash payment to compensate Landlord for any monetary defaults or actual damages arising directly from a breach of this Lease;

(iii) A cash deposit in an amount at least equal to the then-current amount of the Security Deposit; or

(iv) The assumption or assignment of all of Tenant's interest and obligations under this Lease.

ARTICLE 20

LETTER OF CREDIT

20.1 Delivery of Letter of Credit. Tenant shall deliver to Landlord, concurrently with Tenant's execution of this Lease, an unconditional, clean, irrevocable letter of credit (the "**L-C**-") in the amount set forth in Section 20.3 below (the "**L-C Amount**-"), which L-C shall be issued by a money-center, solvent and nationally recognized bank (a bank which accepts deposits, maintains accounts, has a local San Francisco Bay Area, California office which will negotiate a letter of credit, or will accept draw requests by facsimile or overnight courier, and whose deposits are insured by the FDIC) reasonably acceptable to Landlord (such approved, issuing bank being referred to herein as the "**Bank**"), which Bank must have a Moody's Professional Rating Service Rating ("**Moody's Ratings**") which is not less A3 (or in the event such Moody's Ratings are no longer available, a comparable rating from Standard and Poor's Professional Rating Service) (collectively, the "**Bank's Credit Rating Threshold**"), and which L-C shall be in the form of **Exhibit H**, attached hereto. Landlord hereby approves of Bank of America or Silicon Valley Bank as the Bank. Tenant shall pay all expenses, points and/or fees incurred by Tenant in obtaining the L-C. The L-C shall (i) be "callable" at sight, irrevocable and unconditional, (ii) be maintained in effect, whether through renewal or extension, for the period commencing on the date of this Lease and continuing until the date (the "**-L-C Expiration Date**") that is no less than sixty (60) days after the expiration of the Lease Term as the same may be extended, and Tenant shall deliver a new L-C or certificate of renewal or extension to Landlord at least thirty (30) days prior to the expiration of the L-C then held by Landlord, without any action whatsoever on the part of Landlord, (iii) be fully assignable by Landlord, its successors and assigns, (iv) permit partial draws and multiple presentations and drawings, and (v) be otherwise subject to the International Standby Practices-ISP 98, International Chamber of Commerce Publication #590. Landlord, or its then managing agent, shall have the right to draw down an amount up to the face amount of the L-C if any of the following shall have occurred or be applicable: (A) such amount is due to Landlord under the terms and conditions of this Lease and is not paid within applicable notice and cure periods, or (B) Tenant has filed a voluntary petition under the U. S. Bankruptcy Code or any state bankruptcy code (collectively, "**Bankruptcy Code**"), or (C) an involuntary petition has been filed against Tenant under the Bankruptcy Code and is not dismissed within sixty (60) days, or (D) the Lease has been rejected, or is deemed rejected, under Section 365 of the U.S. Bankruptcy Code, following the filing of a voluntary petition by Tenant under the Bankruptcy Code, or the filing of an involuntary petition against Tenant under the Bankruptcy Code, or (E) the Bank has notified Landlord that the L-C will not be renewed or extended through the L-C Expiration Date and Tenant fails to provide a replacement letter of credit that complies with the requirements in this section at least thirty (30) days before the expiration date of the L-C, or (F) Tenant is placed into receivership or conservatorship, or becomes subject to similar proceedings under Federal or State law that is not dismissed within sixty (60) days, or (G) Tenant executes an assignment for the benefit of creditors, or (H) if (1) any of the Bank's Moody's Ratings (or other comparable ratings to the extent the Moody's Ratings are no longer available) have been reduced below the Bank's Credit Rating Threshold, or (2) there is otherwise a material adverse change in the financial condition of the Bank, and Tenant has failed to provide Landlord with a replacement letter of credit, conforming in all respects to the requirements of this Article 20 (including, but not limited to, the requirements placed on the issuing Bank more particularly set forth in this Section 20.1 above), in the amount of the applicable L-C Amount, within ten (10) business days following Landlord's written demand therefor (with no other notice or cure or grace period being applicable thereto, notwithstanding anything in this Lease to the contrary) (each of the foregoing being an "**-L-C Draw Event**"). The L-C shall be honored by the Bank regardless of whether Tenant disputes Landlord's right to draw upon the L-C, and regardless of any discrepancies between the L-C and this Lease. In addition, in the event the Bank is placed into receivership or conservatorship by the Federal Deposit Insurance Corporation or any successor or similar entity, then, effective as of the date such receivership or conservatorship occurs, said L-C shall be deemed to fail to meet the requirements of this Article 20, and, within ten (10) business days following Landlord's notice to Tenant of such receivership or conservatorship (the "**-L-C FDIC Replacement Notice**"), Tenant shall replace such L-C with a substitute letter of credit from a different issuer (which issuer shall meet or exceed the Bank's Credit Rating Threshold and shall otherwise be acceptable to Landlord in its reasonable discretion) and that complies in all respects with the requirements of this Article 20. If Tenant fails to replace such L-C with such conforming, substitute letter of credit pursuant to the terms and conditions of this Section 20.1, then, notwithstanding anything in this Lease to the contrary, Landlord shall have the right to declare Tenant in default of this Lease for which there shall be no notice or grace or cure periods being applicable thereto (other than the aforesaid ten (10) day period). Tenant shall be responsible for the payment of any and all costs incurred with the review of any replacement L-C (including without limitation Landlord's reasonable attorneys' fees), which replacement is required pursuant to this Section or is otherwise requested by Tenant. In the event of an assignment by Tenant of its interest in the Lease (and irrespective of whether Landlord's consent is required for such assignment), the acceptance of any replacement or substitute letter of credit by Landlord from the assignee shall be subject to Landlord's prior written approval, in Landlord's reasonable discretion.

In the event that Landlord draws upon the L-C (i) solely due to Tenant's failure to renew or replace the L-C on a timely basis, such failure shall not constitute a default hereunder and (ii) Tenant shall at any time thereafter be entitled to provide Landlord with a replacement L-C that satisfies the requirements hereunder, at which time Landlord shall return the cash proceeds of the original L-C drawn by Landlord.

20.2 Application of L-C. Tenant hereby acknowledges and agrees that Landlord is entering into this Lease in material reliance upon the ability of Landlord to draw upon the L-C upon the occurrence of any L-C Draw Event. In the event of any L-C Draw Event, Landlord may, but without obligation to do so, and without notice to Tenant (except in connection with an L-C Draw Event under Section 20.1(H) above), draw upon the L-C, in part or in whole, to cure any such L-C Draw Event and/or to compensate Landlord for any and all damages of any kind or nature sustained or which Landlord reasonably estimates that it will sustain resulting from Tenant's breach or default of the Lease or other L-C Draw Event and/or to compensate Landlord for any and all damages arising out of, or incurred in connection with, the termination of this Lease, including, without limitation, those specifically identified in Section 1951.2 of the California Civil Code. The use, application or retention of the L-C, or any portion thereof, by Landlord shall not prevent Landlord from exercising any other right or remedy provided by this Lease or by any applicable law, it being intended that Landlord shall not first be required to proceed against the L-C, and such L-C shall not operate as a limitation on any recovery to which Landlord may otherwise be entitled. Tenant agrees not to interfere in any way with payment to Landlord of the proceeds of the L-C, either prior to or following a "draw" by Landlord of any portion of the L-C, regardless of whether any dispute exists between Tenant and Landlord as to Landlord's right to draw upon the L-C. No condition or term of this Lease shall be deemed to render the L-C conditional to justify the issuer of the L-C in failing to honor a drawing upon such L-C in a timely manner. Tenant agrees and acknowledges that (i) the L-C constitutes a separate and independent contract between Landlord and the Bank, (ii) Tenant is not a third party beneficiary of such contract, (iii) Tenant has no property interest whatsoever in the L-C or the proceeds thereof, and (iv) in the event Tenant becomes a debtor under any chapter of the Bankruptcy Code, Tenant is placed into receivership or conservatorship, and/or there is an event of a receivership, conservatorship or a bankruptcy filing by, or on behalf of, Tenant, neither Tenant, any trustee, nor Tenant's bankruptcy estate shall have any right to restrict or limit Landlord's claim and/or rights to the L-C and/or the proceeds thereof by application of Section 502(b)(6) of the U. S. Bankruptcy Code or otherwise.

20.3 L-C Amount; Maintenance of L-C by Tenant; Liquidated Damages.

20.3.1 L-C Amount. The L-C Amount shall be equal to the amount set forth in Section 10 of the Summary.

20.3.1.1 Reduction of L-C Amount. To the extent that Tenant is not in default under this Lease on the reduction date set forth below (beyond the applicable notice and cure period set forth in this Lease) and if Tenant, as provided below, satisfies the Capital Requirement (as defined below) (collectively, the "**L-C Reduction Contingency**"), then the L-C Amount shall, subject to the terms hereof, be reduced as follows:

First Reduction Date	L-C Amount
Lease Commencement Date	$1,000,000.00

As a condition to the reduction of the L-C Amount provided above, Tenant shall, within five (5) business days before the reduction date set forth above, provide evidence satisfactory to Landlord that Tenant has cash or Cash Equivalents (as defined below) equal to or greater than Fifty Million Dollars ($50,000,000.00) (the "**Capital Requirement**"). For purposes hereof, "**Cash Equivalents**" shall mean: (a) any readily marketable securities (i) issued by, or directly, unconditionally and fully guaranteed or insured by the United States federal government or (ii) issued by any agency of the United States federal government the obligations of which are fully backed by the full faith and credit of the United States federal government, and (b) any Dollar-denominated time deposit, insured certificate of deposit, overnight bank deposit or bankers' acceptance issued or accepted by any commercial bank that is (A) organized under the laws of the United States, any state thereof or the District of Columbia and (B) "adequately capitalized" (as defined in the regulations of its primary federal banking regulators).

In addition, to the extent Tenant is not in default under this Lease on the reduction date set forth below (beyond the applicable notice and cure period set forth in this Lease), then the L-C Amount shall, subject to the terms hereof, be reduced as follows:

Second Reduction Date	L-C Amount
The thirty-sixth (36th) month anniversary of the Lease Commencement Date	$780,000.00

Notwithstanding anything to the contrary set forth in this Section 20.3.1, in no event shall the L-C Amount as set forth above decrease during any period in which Tenant is in default under this Lease beyond applicable notice and cure periods and/or in the event the LC Reduction Contingency (as to the reduction on the first reduction date) is not satisfied, but such decrease shall take place retroactively after such default beyond applicable notice and cure periods is cured and/or after the LC Reduction Contingency is satisfied, provided that no such decrease shall thereafter take effect in the event this Lease is terminated early due to such default by Tenant.

20.3.2 In General. If, as a result of any drawing by Landlord of all or any portion of the L-C, the amount of the L-C shall be less than the L-C Amount, Tenant shall, within five (5) days thereafter, provide Landlord with additional letter(s) of credit in an amount equal to the deficiency, and any such additional letter(s) of credit shall comply with all of the provisions of this Article 20, and if Tenant fails to comply with the foregoing, the same shall be subject to the terms of Section 20.3.3 below. Tenant further covenants and warrants that it will neither assign nor encumber the L-C or any part thereof and that neither Landlord nor its successors or assigns will be bound by any such assignment, encumbrance, attempted assignment or attempted encumbrance. Without limiting the generality of the foregoing, if the L-C expires earlier than the L-C Expiration Date, Landlord will accept a renewal thereof (such renewal letter of credit to be in effect and delivered to Landlord, as applicable, not later than thirty (30) days prior to the expiration of the L-C), which shall be irrevocable and automatically renewable as above provided through the L-C Expiration Date upon the same terms as the expiring L-C or such other terms as may be acceptable to Landlord in its sole discretion. If Tenant exercises its option to extend the Lease Term pursuant to the extension option rider attached hereto as **Rider 1** of this Lease then, not later than thirty (30) days prior to the commencement of the Option Term, Tenant shall deliver to Landlord a new L-C or certificate of renewal or extension evidencing the L-C Expiration Date as sixty (60) days after the expiration of the Option Term. However, if the L-C is not timely renewed, or if Tenant fails to maintain the L-C in the amount and in accordance with the terms set forth in this Article 20, Landlord shall have the right to present the L-C to the Bank in accordance with the terms of this Article 20, and the proceeds of the L-C may be applied by Landlord against any Rent payable by Tenant under this Lease that is not paid when due and/or to pay for all losses and damages that Landlord has suffered or that Landlord reasonably estimates that it will suffer as a result of any breach or default by Tenant under this Lease. In the event Landlord elects to exercise its rights under the foregoing sentence, (I) any unused proceeds shall constitute the property of Landlord (and not Tenant's property or, in the event of a receivership, conservatorship, or a bankruptcy filing by, or on behalf of, Tenant, property of such receivership, conservatorship or Tenant's bankruptcy estate) and need not be segregated from Landlord's other assets, and (II) Landlord agrees to pay to Tenant within thirty (30) days after the L-C Expiration Date the amount of any proceeds of the L-C received by Landlord and not applied against any Rent payable by Tenant under this Lease that was not paid when due or used to pay for any losses and/or damages suffered by Landlord (or reasonably estimated by Landlord that it will suffer) as a result of any breach or default by Tenant under this Lease; provided, however, that if prior to the L-C Expiration Date a voluntary petition is filed by Tenant, or an involuntary petition is filed against Tenant by any of Tenant's creditors, under the Bankruptcy Code, then Landlord shall not be obligated to make such payment in the amount of the unused L-C proceeds until either all preference issues relating to payments under this Lease have been resolved in such bankruptcy or reorganization case or such bankruptcy or reorganization case has been dismissed.

20.4 Transfer and Encumbrance. The L-C shall also provide that Landlord may, at any time and without notice to Tenant and without first obtaining Tenant's consent thereto, transfer (one or more times) all or any portion of its interest in and to the L-C to another party, person or entity, regardless of whether or not such transfer is from or as a part of the assignment by Landlord of its rights and interests in and to this Lease. In the event of a transfer of Landlord's interest in under this Lease, Landlord shall transfer the L-C, in whole or in part, to the transferee and thereupon Landlord shall, without any further agreement between the parties, provided the transferee assumes all of Landlord's obligations hereunder, be released by Tenant from all liability therefor, and it is agreed that the provisions hereof shall apply to every

transfer or assignment of the whole of said L-C to a new landlord. In connection with any such transfer of the L-C by Landlord, Tenant shall, at Tenant's sole cost and expense, execute and submit to the Bank such applications, documents and instruments as may be necessary to effectuate such transfer and, Tenant shall be responsible for paying the Bank's transfer and processing fees in connection therewith; provided that, Landlord shall have the right (in its sole discretion), but not the obligation, to pay such fees on behalf of Tenant, in which case Tenant shall reimburse Landlord within ten (10) days after Tenant's receipt of an invoice from Landlord therefor.

20.5 L-C Not a Security Deposit. Landlord and Tenant (1) acknowledge and agree that in no event or circumstance shall the L-C or any renewal thereof or substitute therefor or any proceeds thereof be deemed to be or treated as a "security deposit" under any law applicable to security deposits in the commercial context, including, but not limited to, Section 1950.7 of the California Civil Code, as such Section now exists or as it may be hereafter amended or succeeded (the "**Security Deposit Laws**"), (2) acknowledge and agree that the L-C (including any renewal thereof or substitute therefor or any proceeds thereof) is not intended to serve as a security deposit, and the Security Deposit Laws shall have no applicability or relevancy thereto, and (3) waive any and all rights, duties and obligations that any such party may now, or in the future will, have relating to or arising from the Security Deposit Laws. Tenant hereby irrevocably waives and relinquishes the provisions of Section 1950.7 of the California Civil Code and any successor statute, and all other provisions of law, now or hereafter in effect, which (x) establish the time frame by which a landlord must refund a security deposit under a lease, and/or (y) provide that a landlord may claim from a security deposit only those sums reasonably necessary to remedy defaults in the payment of rent, to repair damage caused by a tenant or to clean the premises, it being agreed that Landlord may, in addition, claim those sums specified in this Article 20 and/or those sums reasonably necessary to (a) compensate Landlord for any loss or damage caused by Tenant's breach of this Lease, including any damages Landlord suffers following termination of this Lease, and/or (b) compensate Landlord for any and all damages arising out of, or incurred in connection with, the termination of this Lease, including, without limitation, those specifically identified in Section 1951.2 of the California Civil Code.

20.6 Non-Interference By Tenant. Tenant agrees not to interfere in any way with any payment to Landlord of the proceeds of the L-C, either prior to or following a "draw" by Landlord of all or any portion of the L-C, regardless of whether any dispute exists between Tenant and Landlord as to Landlord's right to draw down all or any portion of the L-C. No condition or term of this Lease shall be deemed to render the L-C conditional and thereby afford the Bank a justification for failing to honor a drawing upon such L-C in a timely manner. Tenant shall not request or instruct the Bank of any L-C to refrain from paying sight draft(s) drawn under such L-C.

20.7 Waiver of Certain Relief. Tenant unconditionally and irrevocably waives (and as an independent covenant hereunder, covenants not to assert) any right to claim or obtain any of the following relief in connection with the L-C:

20.7.1 A temporary restraining order, temporary injunction, permanent injunction, or other order that would prevent, restrain or restrict the presentment of sight drafts drawn under any L-C or the Bank's honoring or payment of sight draft(s); or

20.7.2 Any attachment, garnishment, or levy in any manner upon either the proceeds of any L-C or the obligations of the Bank (either before or after the presentment to the Bank of sight drafts drawn under such L-C) based on any theory whatever.

20.8 Remedy for Improper Drafts. Tenant's sole remedy in connection with the improper presentment or payment of sight drafts drawn under any L-C shall be the right to obtain from Landlord a refund of the amount of any sight draft(s) that were improperly presented or the proceeds of which were misapplied, together with interest at the Interest Rate and reasonable actual out-of-pocket attorneys' fees, provided that at the time of such refund, Tenant increases the amount of such L-C to the amount (if any) then required under the applicable provisions of this Lease. Tenant acknowledges that the presentment of sight drafts drawn under any L-C, or the Bank's payment of sight drafts drawn under such L-C, could not under any circumstances cause Tenant injury that could not be remedied by an award of money damages, and that the recovery of money damages would be an adequate remedy therefor. In the event Tenant shall be entitled to a refund as aforesaid and Landlord shall fail to make such payment within ten (10) business days after demand, Tenant shall have the right to deduct the amount thereof together with interest thereon at the Interest Rate from the next installment(s) of Base Rent.

ARTICLE 21

COMPLIANCE WITH LAW

Tenant shall not do anything or suffer anything to be done in or about the Premises which will in any way conflict with any law, statute, ordinance or other governmental rule, regulation or requirement now in force or which may hereafter be enacted or promulgated. At its sole cost and expense, Tenant shall promptly comply with all such governmental measures, other than the making of structural changes or changes to the Building's life safety system or alterations that would be considered capital expenditures (collectively the "**Excluded Changes**"); provided, however, to the extent such Excluded Changes are required due to or triggered by Tenant's improvements or alterations to and/or manner of use of the Premises, Landlord shall perform such work, at Tenant's cost (which shall be paid by Tenant to Landlord within ten (10) days after Tenant's receipt of invoice therefor from Landlord). In addition, Tenant shall fully comply with all present or future legally required programs intended to manage parking, transportation or traffic in and around the Project, and in connection therewith, Tenant shall take responsible action for the transportation planning and management of all employees located at the Premises by working directly with Landlord, any governmental transportation management organization or any other transportation-related committees or entities. The judgment of any court of competent jurisdiction or the admission of Tenant in any judicial action, regardless of whether Landlord is a party thereto, that Tenant has violated any of said governmental measures, shall be conclusive of that fact as between Landlord and Tenant.

ARTICLE 22

ENTRY BY LANDLORD

Landlord reserves the right at all reasonable times and upon reasonable notice to Tenant (of not less than one (1) business day except in the event of an emergency) to enter the Premises to: (i) inspect them; (ii) show the Premises to prospective purchasers, mortgagees or tenants, or to the ground lessors; (iii) to post notices of nonresponsibility; or (iv) alter, improve or repair the Premises or the Building if necessary to comply with current building codes or other applicable laws, or for structural alterations, repairs or improvements to the Building, or as Landlord may otherwise deem necessary. Notwithstanding anything to the contrary contained in this Article 22, Landlord may enter the Premises at any time, without notice to Tenant, in emergency situations and/or to perform janitorial or other services required of Landlord pursuant to this Lease. Any such entries shall be without the abatement of Rent and shall include the right to take such reasonable steps as required to accomplish the stated purposes. Tenant hereby waives any claims for damages or for any injuries or inconvenience to or interference with Tenant's business, lost profits, any loss of occupancy or quiet enjoyment of the Premises, and any other loss occasioned thereby. For each of the above purposes, Landlord shall at all times have a key with which to unlock all the doors in the Premises, excluding Tenant's vaults, safes and special security areas designated in advance by Tenant. In an emergency, Landlord shall have the right to enter without notice and use any means that Landlord may deem proper to open the doors in and to the Premises. Any entry into the Premises in the manner hereinbefore described shall not be deemed to be a forcible or unlawful entry into, or a detainer of, the Premises, or an actual or constructive eviction of Tenant from any portion of the Premises. Notwithstanding the foregoing, any entry by Landlord or Landlord's agents shall not unreasonably interfere with Tenant's operations more than reasonably necessary, and shall comply with Tenant's reasonable security measures, including wearing appropriate personal protective equipment (PPE) where required.

ARTICLE 23

PARKING

Throughout the Lease Term, Tenant shall have the right to use, on a "first-come, first-serve" basis, in common with other tenants of the Building and free of parking charges, the number of unreserved parking spaces set forth in Section 12 of the Summary, which unreserved parking spaces are located in the Parking Facility servicing the Building as shall be designated by Landlord from time to time for unreserved parking for the tenants of the Building. Tenant's continued right to use the parking spaces is conditioned upon (i) Tenant abiding by (A) the Parking Rules and Regulations which are in effect on the date hereof, as set forth in the attached **Exhibit D** and all reasonable modifications and additions thereto which are prescribed from time to time for the orderly operation and use of the Parking Facility by Landlord, and/or Landlord's Parking Operator (as defined below), and (B) all recorded covenants, conditions and restrictions affecting the Building, and (ii) upon Tenant's cooperation in seeing that Tenant's employees and visitors also comply

with the Parking Rules and Regulations (and all such modifications and additions thereto, as the case may be), any such other rules and regulations and covenants, conditions and restrictions. Landlord (and/or any other owners of the Project) specifically reserve the right to change the size, configuration, design, layout, location and all other aspects of the Parking Facility (including without limitation, implementing paid visitor parking), and Tenant acknowledges and agrees that Landlord may, without incurring any liability to Tenant and without any abatement of Rent under this Lease, from time to time, temporarily close-off or restrict access to the Parking Facility, so long as the same does not (other than on a temporary basis of less than one (1) week) reduce the number and availability of parking spaces available to Tenant under this Lease. Landlord may delegate its responsibilities hereunder to a parking operator (the "**Parking Operator**") in which case the Parking Operator shall have all the rights of control attributed hereby to Landlord. Any parking tax or other charges imposed by governmental authorities in connection with the use of such parking shall be paid directly by Tenant or the parking users, or, if directly imposed against Landlord, Tenant shall reimburse Landlord for all such taxes and/or charges thirty (30) days after Landlord's demand therefor. The parking rights provided to Tenant pursuant to this Article 23 are provided solely for use by Tenant's own personnel and such rights may not be transferred, assigned, subleased or otherwise alienated by Tenant without Landlord's prior approval, except in connection with an assignment of this Lease or sublease of the Premises made in accordance with Article 14 above. All visitor parking by Tenant's visitors shall be subject to availability, as reasonably determined by Landlord (and/or the Parking Operator, as the case may be), parking in such visitor parking areas as may be designated by Landlord (and/or the Parking Operator from time to time, and payment by such visitors of the prevailing visitor parking rate (if any) charged by Landlord (and/or the Parking Operator) from time to time.

ARTICLE 24

MISCELLANEOUS PROVISIONS

24.1 Terms; Captions. The necessary grammatical changes required to make the provisions hereof apply either to corporations or partnerships or individuals, men or women, as the case may require, shall in all cases be assumed as though in each case fully expressed. The captions of Articles and Sections are for convenience only and shall not be deemed to limit, construe, affect or alter the meaning of such Articles and Sections.

24.2 Binding Effect. Each of the provisions of this Lease shall extend to and shall, as the case may require, bind or inure to the benefit not only of Landlord and of Tenant, but also of their respective successors or assigns, provided this clause shall not permit any assignment by Tenant contrary to the provisions of Article 14 above.

24.3 No Waiver. No waiver of any provision of this Lease shall be implied by any failure of a party to enforce any remedy on account of the violation of such provision, even if such violation shall continue or be repeated subsequently, any waiver by a party of any provision of this Lease may only be in writing, and no express waiver shall affect any provision other than the one specified in such waiver and that one only for the time and in the manner specifically stated. No receipt of monies by Landlord from Tenant after the termination of this Lease shall in any way alter the length of the Lease Term or of Tenant's right of possession hereunder or after the giving of any notice shall reinstate, continue or extend the Lease Term or affect any notice given Tenant prior to the receipt of such monies, it being agreed that after the service of notice or the commencement of a suit or after final judgment for possession of the Premises, Landlord may receive and collect any Rent due, and the payment of said Rent shall not waive or affect said notice, suit or judgment.

24.4 Modification of Lease. If any current or prospective mortgagee or ground lessor for the Project requires modifications to this Lease, which modifications will not cause an increased cost or expense to Tenant or in any other way materially and adversely change the rights and obligations of Tenant hereunder or unreasonably interfere with Tenant's use of or access to the Premises, then and in such event, Tenant agrees that this Lease may be so modified and agrees to execute whatever reasonable documents are required therefor and deliver the same to Landlord within ten (10) days following the request therefor. If Landlord or any such current or prospective mortgagee or ground lessor require execution of a short form of Lease for recording, containing, among other customary provisions, the names of the parties, a description of the Premises and the Lease Term, Tenant shall execute such short form of Lease and to deliver the same to Landlord within ten (10) days following the request therefor.

24.5 Transfer of Landlord's Interest. Landlord has the right to transfer all or any portion of its interest in the Project, the Building and/or in this Lease, and upon any such transfer, Landlord shall automatically be released from all liability under this Lease and Tenant shall look solely to such transferee for the performance of Landlord's obligations

hereunder after the date of transfer. The liability of any transferee of Landlord shall be limited to the amount of the interest of such transferee in the Project including all proceeds therefrom and such transferee shall otherwise be without personal liability under this Lease, and Tenant hereby expressly waives and releases such personal liability on behalf of itself and all persons claiming by, through or under Tenant. Landlord may also assign its interest in this Lease to a mortgage lender as additional security but such assignment shall not release Landlord from its obligations hereunder and Tenant shall continue to look to Landlord for the performance of its obligations hereunder. Except for Landlord's liability as limited under the second sentence of this Section 24.5, neither Landlord nor any of its affiliates, nor any of their respective partners, shareholders, directors, officers, employees, members or agents shall be personally liable for Landlord's obligations or any deficiency under this Lease, and service of process shall not be made against any shareholder, member, director, officer, employee or agent of Landlord or any of Landlord's affiliates. No partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates shall be sued or named as a party in any suit or action, and service of process shall not be made against any partner or member of Landlord except as may be necessary to secure jurisdiction of the partnership, joint venture or limited liability company, as applicable. No partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates shall be required to answer or otherwise plead to any service of process, and no judgment shall be taken or writ of execution levied against any partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates.

24.6 Prohibition Against Recording. Except as provided in Section 24.4 of this Lease, neither this Lease, nor any memorandum, affidavit or other writing with respect thereto, shall be recorded by Tenant or by anyone acting through, under or on behalf of Tenant, and the recording thereof in violation of this provision shall make this Lease null and void at Landlord's election.

24.7 Landlord's Title; Air Rights. Landlord's title is and always shall be paramount to the title of Tenant. Nothing herein contained shall empower Tenant to do any act which can, shall or may encumber the title of Landlord. No rights to any view or to light or air over any property, whether belonging to Landlord or any other person, are granted to Tenant by this Lease.

24.8 Tenant's Signs.

24.8.1 General. Tenant shall be entitled, at Landlord's initial sole cost and expense, to one (1) identification sign on or near the entry doors of the Premises and for multi-tenant floors (if any) on which the Premises are located, one (1) identification or directional sign, as designated by Landlord, in the elevator lobby on the floor on which the Premises are located, and identification on the lobby directory in the Building; any Landlord approved changes to such signage shall be at Tenant's sole cost and expense. Such signs shall be installed by a signage contractor designated by Landlord. The location, quality, design, style, lighting and size of such signs shall be consistent with the Landlord's Building standard signage program and shall be subject to Landlord's prior written approval, in its reasonable discretion. Upon the expiration or earlier termination of this Lease, Tenant shall be responsible, at its sole cost and expense, for the removal of such signage and the repair of all damage to the Building caused by such removal. Except for such identification signs, Tenant may not install any signs on the exterior or roof of the Building, the Other Existing Building or the common areas of the Building or the Project. Any signs, window coverings, or blinds (even if the same are located behind the Landlord approved window coverings for the Building), or other items visible from the exterior of the Premises or Building are subject to the prior approval of Landlord, in its sole and absolute discretion.

24.8.2 Building-Top Signage. Subject to the approval of all applicable governmental and quasi-governmental entities, and subject to all applicable governmental and quasi-governmental laws, rules, regulations and codes and any covenants, conditions and restrictions affecting the Project, in the event that Landlord is allowed, under applicable laws, to install Building-top signage on the Building, then Landlord shall allow Tenant the non-exclusive right to have one (1) Building-top sign ("**Building-Top Sign**") containing its name and logo on one side of the Building. In such event, the design, size, specifications, graphics, materials, manner of affixing, exact location, colors and lighting (if applicable) of Tenant's Building-Top Sign shall be (i) consistent with the quality and appearance of the Project, (ii) subject to the approval of all applicable governmental and quasi-governmental authorities, and subject to all applicable governmental and quasi-governmental laws, rules, regulations and codes and any covenants, conditions and restrictions affecting the Project, and (iii) subject to Landlord's approval (which shall not be unreasonably withheld, conditioned or delayed); provided, however, that Tenant shall have the right to select the side of the Building for the location of such Building-Top Sign. In the event the applicable governmental authorities do not approve any building-top signage, then Tenant shall have the right to other tenant exterior signage which may be approved by such governmental authority (such as monument signage). Landlord shall install Tenant's Building-Top Sign (or other governmentally approved exterior

signage) at Tenant's sole cost and expense. In addition, Tenant shall be responsible for all other costs attributable to the fabrication, insurance, lighting (if applicable), maintenance, repair and removal of Tenant's Building-Top Sign (or such other governmentally approved signage). The conditional signage right granted to Tenant under this Section 24.8.2 is personal to the Original Tenant and any Affiliate Assignee and may not be exercised or used by or assigned to any other person or entity. In addition, Original Tenant (or such Affiliate Assignee, as the case may be) shall no longer have any right to Tenant's Building-Top Sign if at any time during the Term the Original Tenant (or such Affiliate Assignee) subleases more than fifty percent (50%) of the entire Premises then leased by Tenant (or such Affiliate Assignee) hereunder. Upon the expiration or sooner termination of this Lease, or upon the earlier termination of Tenant's signage rights under this Section 24.8.2, Landlord shall have the right to permanently remove Tenant's Building-Top Sign from the Building and to repair all damage to the Building resulting from such removal and restore the affected area to its original condition existing prior to the installation of such Building-Top Sign, and Tenant shall reimburse Landlord for the costs thereof; the foregoing removal rights and reimbursement obligations shall also apply to any Tenant monument signage or other governmentally approved Tenant signage.

24.9 Relationship of Parties. Nothing contained in this Lease shall be deemed or construed by the parties hereto or by any third party to create the relationship of principal and agent, partnership, joint venturer or any association between Landlord and Tenant, it being expressly understood and agreed that neither the method of computation of Rent nor any act of the parties hereto shall be deemed to create any relationship between Landlord and Tenant other than the relationship of landlord and tenant.

24.10 Application of Payments. Landlord shall have the right to apply payments received from Tenant pursuant to this Lease, regardless of Tenant's designation of such payments, to satisfy any obligations of Tenant hereunder, in such order and amounts as Landlord, in its sole discretion, may elect.

24.11 Time of Essence. Time is of the essence of this Lease and each of its provisions.

24.12 Partial Invalidity. If any term, provision or condition contained in this Lease shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term, provision or condition to persons or circumstances other than those with respect to which it is invalid or unenforceable, shall not be affected thereby, and each and every other term, provision and condition of this Lease shall be valid and enforceable to the fullest extent possible permitted by law.

24.13 No Warranty. In executing and delivering this Lease, Tenant has not relied on any representation, including, but not limited to, any representation whatsoever as to the amount of any item comprising Additional Rent or the amount of the Additional Rent in the aggregate or that Landlord is furnishing the same services to other tenants, at all, on the same level or on the same basis, or any warranty or any statement of Landlord which is not set forth herein or in one or more of the Exhibits attached hereto.

24.14 Landlord Exculpation. Notwithstanding anything in this Lease to the contrary, and notwithstanding any applicable law to the contrary, the liability of Landlord and the Landlord Parties under this Lease (including any successor landlord) and any recourse by Tenant against Landlord or the Landlord Parties shall be limited solely and exclusively to an amount which is equal to the ownership interest of Landlord in the Project (including any proceeds thereof), and neither Landlord, nor any of the Landlord Parties (except for Landlord’s liability as limited in the preceding portion of this sentence) shall have any personal liability therefor, and Tenant hereby expressly waives and releases such personal liability on behalf of itself and all persons claiming by, through or under Tenant.

24.15 Entire Agreement. There are no oral agreements between the parties hereto affecting this Lease and this Lease supersedes and cancels any and all previous negotiations, arrangements, brochures, agreements and understandings, if any, between the parties hereto or displayed by Landlord to Tenant with respect to the subject matter thereof, and none thereof shall be used to interpret or construe this Lease. This Lease and any side letter or separate agreement executed by Landlord and Tenant in connection with this Lease and dated of even date herewith contain all of the terms, covenants, conditions, warranties and agreements of the parties relating in any manner to the rental, use and occupancy of the Premises, shall be considered to be the only agreement between the parties hereto and their representatives and agents, and none of the terms, covenants, conditions or provisions of this Lease can be modified, deleted or added to except in writing signed by the parties hereto. All negotiations and oral agreements acceptable to both parties have been merged into and are included herein. There are no other representations or warranties between

the parties, and all reliance with respect to representations is based totally upon the representations and agreements contained in this Lease.

24.16 Right to Lease. Landlord reserves the absolute right to effect such other tenancies in the Building, the Other Existing Building and/or in any other building and/or any other portion of the Project as Landlord in the exercise of its sole business judgment shall determine to best promote the interests of the Project. Tenant does not rely on the fact, nor does Landlord represent, that any specific tenant or type or number of tenants shall, during the Lease Term, occupy any space in the Building, the Other Existing Building or Project.

24.17 Force Majeure. Any prevention, delay or stoppage due to strikes, lockouts, labor disputes, acts of God, inability to obtain services, labor, or materials or reasonable substitutes therefor, governmental actions, civil commotions, fire or other casualty, and other causes beyond the reasonable control of the party obligated to perform, except with respect to the obligations imposed with regard to Rent and other charges to be paid by Tenant pursuant to this Lease (collectively, the "**Force Majeure**"), notwithstanding anything to the contrary contained in this Lease, shall excuse the performance of such party for a period equal to any such prevention, delay or stoppage and, therefore, if this Lease specifies a time period for performance of an obligation of either party, that time period shall be extended by the period of any delay in such party's performance caused by a Force Majeure; provided, however, Tenant’s rights to abate rent or terminate this Lease shall not be delayed as a result thereof, except as expressly provided in this Lease.

24.18 Waiver of Redemption by Tenant. Tenant hereby waives for Tenant and for all those claiming under Tenant all right now or hereafter existing to redeem by order or judgment of any court or by any legal process or writ, Tenant's right of occupancy of the Premises after any termination of this Lease.

24.19 Notices. All notices, demands, statements or communications (collectively, "**Notices**") given or required to be given by either party to the other hereunder shall be in writing, shall be (A) sent by United States certified or registered mail, postage prepaid, return receipt requested, (B) delivered by a nationally recognized overnight courier, or (C) delivered personally (i) to Tenant at the appropriate address set forth in Section 5 of the Summary, or to such other place as Tenant may from time to time designate in a Notice to Landlord; or (ii) to Landlord at the addresses set forth in Section 3 of the Summary, or to such other firm or to such other place as Landlord may from time to time designate in a Notice to Tenant. Any Notice will be deemed given three (3) business days after the date it is mailed as provided in this Section 24.19, the date overnight courier delivery is made or upon the date personal delivery is made or rejected. If Tenant is notified of the identity and address of Landlord's mortgagee or ground lessor, Tenant shall give to such mortgagee or ground lessor written notice of any default by Landlord under the terms of this Lease by registered or certified mail, and such mortgagee or ground lessor shall be given a reasonable opportunity to cure such default prior to Tenant's exercising any remedy available to Tenant.

24.20 Joint and Several. If there is more than one person or entity executing this Lease as Tenant, the obligations imposed upon such persons and entities under this Lease are and shall be joint and several.

24.21 Representations. Tenant guarantees, warrants and represents that (a) Tenant is duly incorporated or otherwise established or formed and validly existing under the laws of its state of incorporation, establishment or formation, (b) Tenant has and is duly qualified to do business in the state in which the Project is located, (c) Tenant has full corporate, partnership, trust, association or other appropriate power and authority to enter into this Lease and to perform all Tenant's obligations hereunder, (d) each person (and all of the persons if more than one signs) signing this Lease on behalf of Tenant is duly and validly authorized to do so and (e) neither (i) the execution, delivery or performance of this Lease nor (ii) the consummation of the transactions contemplated hereby will violate or conflict with any provision of documents or instruments under which Tenant is constituted or to which Tenant is a party. In addition, Tenant guarantees, warrants and represents that it is not a person or entity with whom U.S. persons or entities are restricted from doing business under regulations of the Office of Foreign Asset Control ("**OFAC**") of the Department of the Treasury (including those named on OFAC's Specially Designated and Blocked Persons List) or under any statute, executive order (including the September 24, 2001, Executive Order Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism) or other similar governmental action.

24.22 Jury Trial; Attorneys' Fees. IF EITHER PARTY COMMENCES LITIGATION AGAINST THE OTHER FOR THE SPECIFIC PERFORMANCE OF THIS LEASE, FOR DAMAGES FOR THE BREACH HEREOF OR OTHERWISE FOR ENFORCEMENT OF ANY REMEDY HEREUNDER, THE PARTIES HERETO AGREE TO AND HEREBY DO WAIVE ANY RIGHT TO A TRIAL BY JURY. In the event of any such commencement of litigation,

the prevailing party shall be entitled to recover from the other party such costs and reasonable attorneys' fees as may have been incurred, including any and all costs incurred in enforcing, perfecting and executing such judgment.

24.23 Governing Law. This Lease shall be construed and enforced in accordance with the laws of the state in which the Project is located.

24.24 Submission of Lease. Submission of this instrument for examination or signature by Tenant does not constitute a reservation of or an option for lease, and it is not effective as a lease or otherwise until execution and delivery by both Landlord and Tenant.

24.25 Brokers. Landlord and Tenant each hereby represents and warrants to the other party that it (i) has had no dealings with any real estate broker or agent in connection with the negotiation of this Lease, excepting only the real estate brokers or agents specified in Section 11 of the Summary (collectively, the "**Brokers**"), and (ii) knows of no other real estate broker or agent who is entitled to a commission in connection with this Lease. Each party agrees to indemnify and defend the other party against and hold the other party harmless from any and all claims, demands, losses, liabilities, lawsuits, judgments, and costs and expenses (including without limitation reasonable attorneys' fees) with respect to any leasing commission or equivalent compensation alleged to be owing on account of the indemnifying party's dealings with any real estate broker or agent in connection with this Lease other than the Brokers.

24.26 Independent Covenants. This Lease shall be construed as though the covenants herein between Landlord and Tenant are independent and not dependent and Tenant hereby expressly waives the benefit of any statute to the contrary and agrees that if Landlord fails to perform its obligations set forth herein, Tenant shall not be entitled to make any repairs or perform any acts hereunder at Landlord's expense or to any setoff of the Rent or other amounts owing hereunder against Landlord; provided, however, that the foregoing shall in no way impair the right of Tenant to commence a separate action against Landlord for any violation by Landlord of the provisions hereof so long as notice is first given to Landlord and any holder of a mortgage or deed of trust covering the Building, Project or any portion thereof, of whose address Tenant has theretofore been notified, and an opportunity is granted to Landlord and such holder to correct such violations as provided above.

24.27 Building Name and Signage. Landlord shall have the right at any time to change the name(s) of the Building, the Other Existing Building and Project and to install, affix and maintain any and all signs on the exterior and on the interior of the Building, the Other Existing Building and any portion of the Project as Landlord may, in Landlord's sole discretion, desire. Tenant shall not use the names of the Building, the Other Existing Building or Project or use pictures or illustrations of the Building, the Other Existing Building or Project in advertising or other publicity, without the prior written consent of Landlord.

24.28 Building Directory. If the Building contains a tenant name directory, Landlord shall include Tenant's name and location in the Building on one (1) line on the Building directory. The initial cost of such directory signage shall be paid for by Landlord, but any subsequent charges thereto shall be at Tenant's cost.

24.29 Confidentiality. Except as may be required by law or in litigation with Landlord, Tenant shall use commercially reasonable efforts to keep the content of this Lease and any related documents confidential and not disclose such confidential information to any person or entity other than Tenant's financial, legal, and space planning consultants, proposed subtenants and current and proposed lenders, investors and business partners.

24.30 Landlord's Construction. Except as specifically set forth in this Lease or in the Tenant Work Letter: (i) Landlord has no obligation to alter, remodel, improve, renovate, repair or decorate the Premises, the Building, the Other Existing Building, the Project, or any part thereof; and (ii) no representations or warranties respecting the condition of the Premises, the Building, the Other Existing Building or the Project have been made by Landlord to Tenant. Tenant acknowledges that prior to and during the Lease Term, Landlord (and/or any common area association) will be completing construction and/or demolition work pertaining to various portions of the Building, the Other Existing Building, the Premises, and/or the Project, including without limitation, landscaping and tenant improvements for premises for other tenants and, at Landlord's sole election, such other buildings, improvements, landscaping and other facilities within or as part of the Project as Landlord (and/or such common area association) shall from time to time desire (collectively, the "**Construction**"). In connection with such Construction, Landlord may, among other things, erect scaffolding or other necessary structures in the Building and/or the Other Existing Building, limit or eliminate access to portions of the Project, including portions of the common areas, or perform work in the Building, the Other Existing Building and/

or the Project, which work may create noise, dust or leave debris in the Building, the Other Existing Building and/or the Project. Notwithstanding the foregoing, Landlord's Construction shall be performed in such a manner as to not unreasonably interfere with Tenant's access to or use of the Premises for Tenant's business purposes, or materially decrease Tenant's rights or increase Tenant's obligations under this Lease. Tenant hereby agrees that such Construction and Landlord's actions in connection with such Construction shall in no way constitute a constructive eviction of Tenant nor entitle Tenant to any abatement of Rent so long as such Construction does not unreasonably interfere with Tenant's access to or use of the Premises for Tenant's business purposes. Landlord shall have no responsibility or for any reason be liable to Tenant for any direct or indirect injury to or interference with Tenant's business arising from such Construction, nor shall Tenant be entitled to any compensation or damages from Landlord for loss of the use of the whole or any part of the Premises or of Tenant's personal property or improvements resulting from such Construction or Landlord's actions in connection with such Construction, or for any inconvenience or annoyance occasioned by such Construction or Landlord's actions in connection with such Construction. Landlord reserves full control over the Project to the extent not inconsistent with Tenant's enjoyment the same as provided in this Lease. This reservation includes Landlord's right to subdivide the Project and convert portions of the Project to condominium units, change the size of the Project by selling all or a portion of the Project or adding real property and any improvements thereon to the Project; grant easements and licenses to third parties and maintain or establish ownership of the Buildings separate from the fee title to the Project.

24.31 Intentionally Omitted.

24.32 Net Lease. This Lease shall be deemed and construed to be an "absolute net lease" and, except as herein expressly provided, Landlord shall receive all payments required to be made by Tenant free from all charges, assessments, impositions, expenses and deductions of any and every kind or nature whatsoever. Landlord shall not be required to furnish any services or facilities or to make any repairs, replacements or alterations of any kind in or on the Premises except as specifically provided herein.

24.33 Access Control. Landlord shall provide certain access control services for the Building on a 24 hours a day, 7 days a week and 365 days a year basis. Tenant recognizes that any access control services provided by Landlord at the Building is for the protection of Landlord's property and under no circumstances shall Landlord be responsible for, and Tenant waives any rights with respect to, providing security or other protection for Tenant or its employees, invitees or property in or about the Premises or the Project. Landlord shall not be liable to Tenant, and Tenant hereby waives any claim against Landlord, for, and expressly assumes the risk of (i) any unauthorized or criminal entry of third parties into the Premises or the Building, (ii) any damage to persons in or about the Premises or the Project, or (iii) any loss of property in and about the Premises or the Building, by or from any unauthorized or criminal acts of third parties, regardless of any action, inaction, failure, breakdown, malfunction and/or insufficiency of the security services provided by Landlord or any actual or alleged passive or active negligence of Landlord.

24.34 Performing Arts Center. The Project includes an approximately 235-seat performing arts center (the "**PAC**"), located in the adjacent building at One Tower Place. Booking of the PAC shall be subject to availability on a shared basis with all other tenants in the Project. Tenant shall follow those procedures promulgated by Landlord from time to time to schedule use of the PAC. Tenant shall have the right to use the PAC so long as Tenant has scheduled such use of the PAC in advance in accordance with Landlord procedures.

24.35 Fitness Center. There is a fitness center in the Building located on the second floor (the "**Fitness Center**") for the non-exclusive use by Landlord, Tenant and other tenants of the Building, subject to the reasonable rules adopted from time to time by Landlord for such usage. The costs of operating and maintaining the Fitness Center shall be included in Operating Expenses. Use of the Fitness Center by Tenant shall be at the sole risk of Tenant and Landlord assumes no liability or risk associated with Tenant's use of the Fitness Center. Tenant acknowledges that use of the Fitness Center is unsupervised and unattended. Tenant acknowledges that each officer or employee of Tenant who desires to use the Fitness Center will be required to sign and deliver to Landlord, a commercially reasonable release of liability agreement in such form as is customary in the industry and as may be revised by Landlord from time to time. Landlord shall have the right to relocate the fitness center in the Project.

24.36 Sustainability.

24.36.1 Sustainable Building Operations.

(a) This Building is or may become in the future certified under the Green Building Initiative's Green Globes™ for Continual Improvement of Existing Buildings (Green Globes™-CIEB), the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, or operated pursuant to Landlord's sustainable building practices. Landlord's sustainability practices address whole-building operations and maintenance issues including chemical use; indoor air quality; energy efficiency; water efficiency; recycling programs; exterior maintenance programs; and systems upgrades to meet green building energy, water, Indoor Air Quality, and lighting performance standards. Notwithstanding the foregoing, Tenant shall not be required to comply with any Green Building Initiatives or other rating systems as set forth above until the Building is certified as such, and Tenant shall only be required to comply with such Green Building Initiatives with respect to any upgrades, alterations or improvements made by Tenant after the Building is certified as set forth above. In no event shall Tenant be required to make changes, improvements and/or other repairs or replacements to the Premises in order to make the Premises compliant with the above stated initiatives and rating systems. All construction and maintenance methods and procedures, material purchase, and disposal of waste must be in compliance with minimum standards and specifications, in addition to all applicable laws.

(b) Tenant shall use proven energy and carbon reduction measures, including energy efficient bulbs in task lighting; use of lighting controls; daylighting measures to avoid over-lighting interior spaces; closing shades on the south side of the Building to avoid over heating the space; turning off lights and equipment at the end of the work day; and purchasing, with respect to any new equipment that Tenant purchases for the Premises, ENERGY STAR® qualified equipment, if applicable, including but not limited to lighting, office equipment, commercial and residential quality kitchen equipment, vending and ice machines; purchasing products certified by the U.S. EPA's Water Sense® program. Tenant shall not be required to replace any existing equipment used by Tenant as of the date of this Lease which Tenant intends to install in the Premises in order to comply with the provisions of this Section 24.36(b).

24.36.2 Recycling and Waste Management. Tenant covenants and agrees, at its sole cost and expense: (a) to comply with all present and future laws, orders and regulations of the Federal, State, county, municipal or other governing authorities, departments, commissions, agencies and boards regarding the collection, sorting, separation, and recycling of garbage, trash, rubbish and other refuse (collectively, "**trash**"); (b) to comply with Landlord's recycling policy as part of Landlord's sustainability practices where it may be more stringent than applicable law; (c) to sort and separate its trash and recycling into such categories as are provided by law or Landlord's sustainability practices; (d) that each separately sorted category of trash and recycling shall be placed in separate receptacles as directed by Landlord; (e) that Landlord reserves the right to refuse to collect or accept from Tenant any waste that is not separated and sorted as required by law, and to require Tenant to arrange for such collection of Tenant's sole cost and expense, utilizing a contractor satisfactory to Landlord; and (f) that Tenant shall pay all costs, expenses, fines, penalties or damages that may be imposed on Landlord or Tenant by reason of Tenant's failure to comply with the provisions of this Section.

24.37 Transportation Management.

24.37.1 Tenant shall fully comply with all present or future legally required programs intended to manage parking, transportation or traffic in and around the Building, and in connection therewith, Tenant shall take responsible action for the transportation planning and management of all employees located at the Premises by working directly with Landlord, any governmental transportation management organization or any other transportation-related committees or entities. Such programs may include, without limitation: (i) restrictions on the number of peak-hour vehicle trips generated by Tenant; (ii) increased vehicle occupancy; (iii) implementation of an in-house ridesharing program and an employee transportation coordinator; (iv) working with employees and any Building or area-wide ridesharing program manager; (v) instituting employer-sponsored incentives (financial or in-kind) to encourage employees to rideshare; and (vi) utilizing flexible work shifts for employees.

24.37.2 Pursuant to the Conditions of Approval for this project a draft Transportation Demand Management Plan was adopted by the South San Francisco City Council in October 2006. A final Transportation Demand Management Plan is under development that satisfies the requirement of the City of South San Francisco's transportation demand management goals and also the San Mateo County Transportation Demand Management guidelines. The plan is to be provided to tenants of the Building to participate in a program designed to coordinate commute alternatives. During the term of the Tenant's tenancy, Landlord agrees to provide transportation brokerage and commute assistance services, as part of Operating Expenses to assist the Tenant in meeting the transportation needs of its employees. Tenant agrees to cooperate with and assist the Landlord's transportation management coordinator (the "**Coordinator**"), through designation of a responsible employee, to distribute to Tenant's employees written materials promoting and encouraging

the use of public transit and/or ridesharing, and distribute and return to the Coordinator transportation survey questionnaire forms. Tenant may agree, at its option, to participate in other activities required of Landlord and/or ridesharing by employees in the Building.

24.38 Approvals. Whenever this Lease requires an approval, consent, determination or judgment by either Landlord or Tenant, unless another standard is expressly set forth in this Lease, such approval, consent, determination or judgment and any conditions imposed thereby shall be reasonable and shall not be unreasonably withheld or delayed.

[Remainder of Page Intentionally Left Blank; Signatures on Next Page]

IN WITNESS WHEREOF, Landlord and Tenant have caused this Lease to be executed the day and date first above written.

"**Landlord**":

AP3-SF3 CT NORTH, LLC,
a Delaware limited liability company

By: /s/ W. Neil Fox, III
Name: W. Neil Fox, III
Its: Chief Executive Officer

"**Tenant**":

FLUIDIGM CORPORATION,
a Delaware corporation

By: /s/ Bradley Kreger
Name: Bradley Kreger
Its: SVP, Global Operations

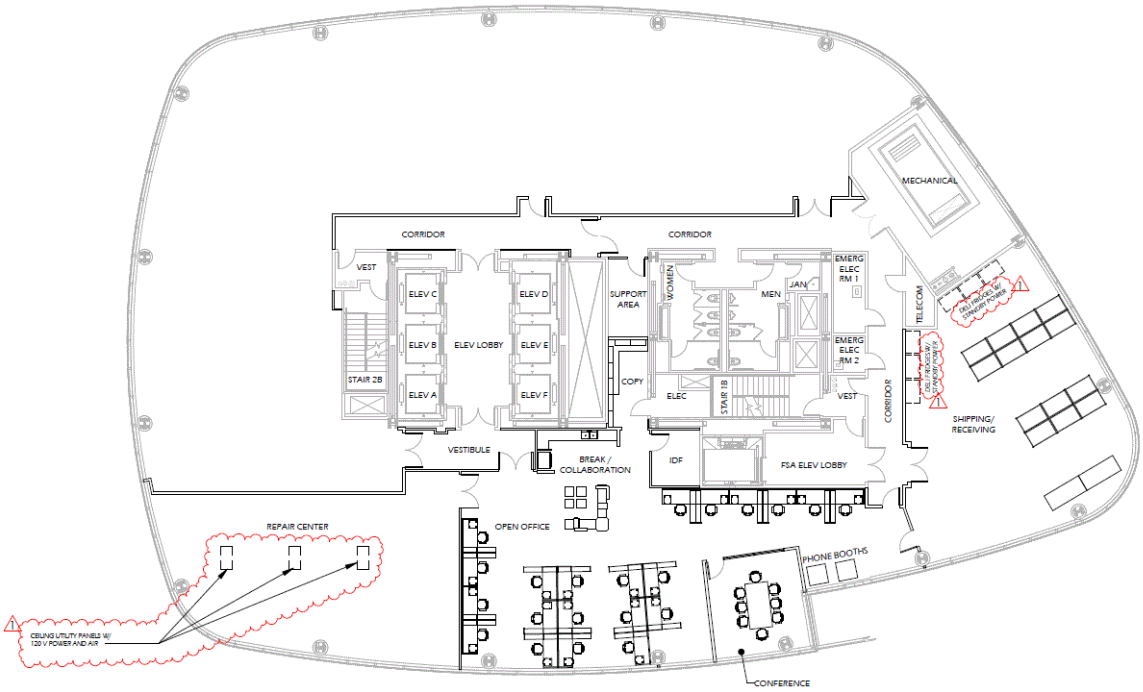
By: __
Name: __
Its: __

*** If Tenant is a CORPORATION, the authorized officers must sign on behalf of the corporation and indicate the capacity in which they are signing. The Lease must be executed by the president or vice president and the secretary or assistant secretary, unless the bylaws or a resolution of the board of directors shall otherwise provide, in which event, the bylaws or a certified copy of the resolution, as the case may be, must be attached to this Lease.

EXHIBIT A

OUTLINE OF FLOOR PLANS OF PREMISES

[See Attached]



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 18 - FLUIDIGM
1/16" = 1'-0"

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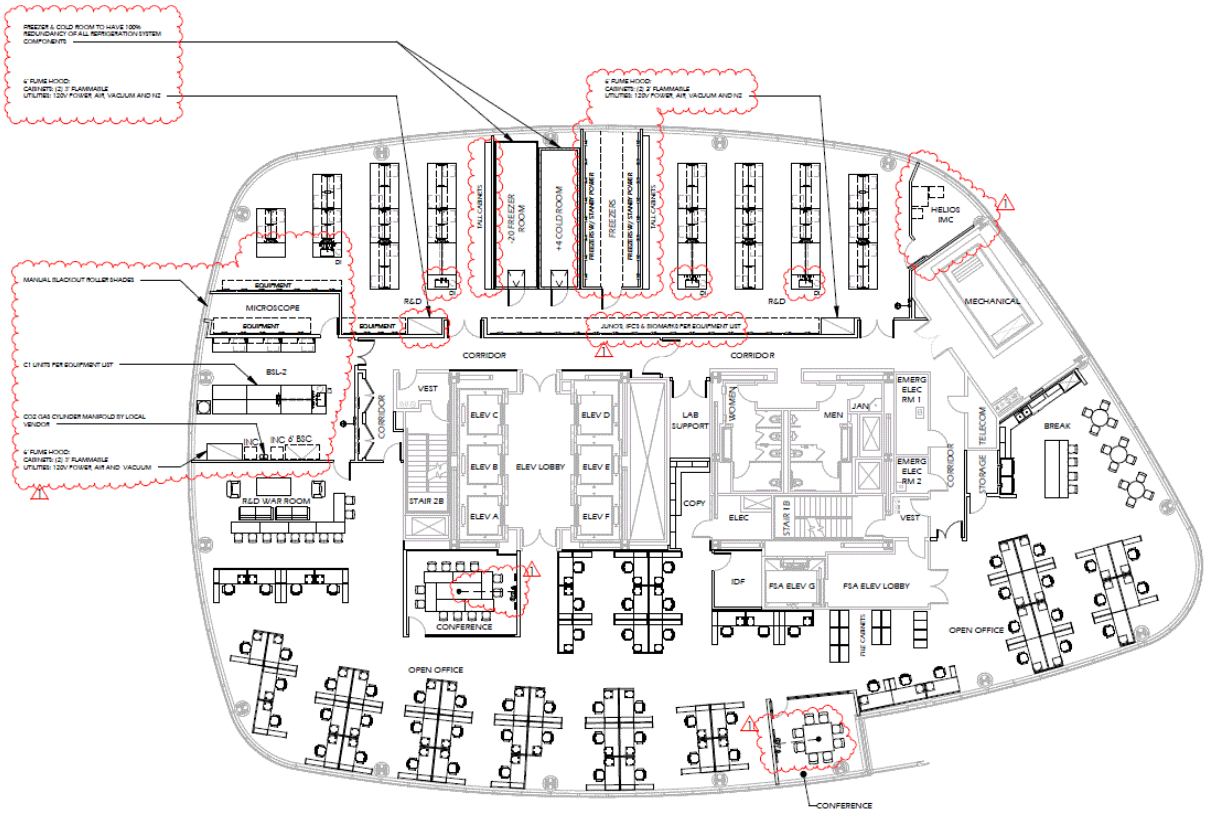
1 10/24/18 REVISIONS

MCFARLANE ARCHITECTS | PHASE3 | GENESIS



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 19 - FLUIDIGM
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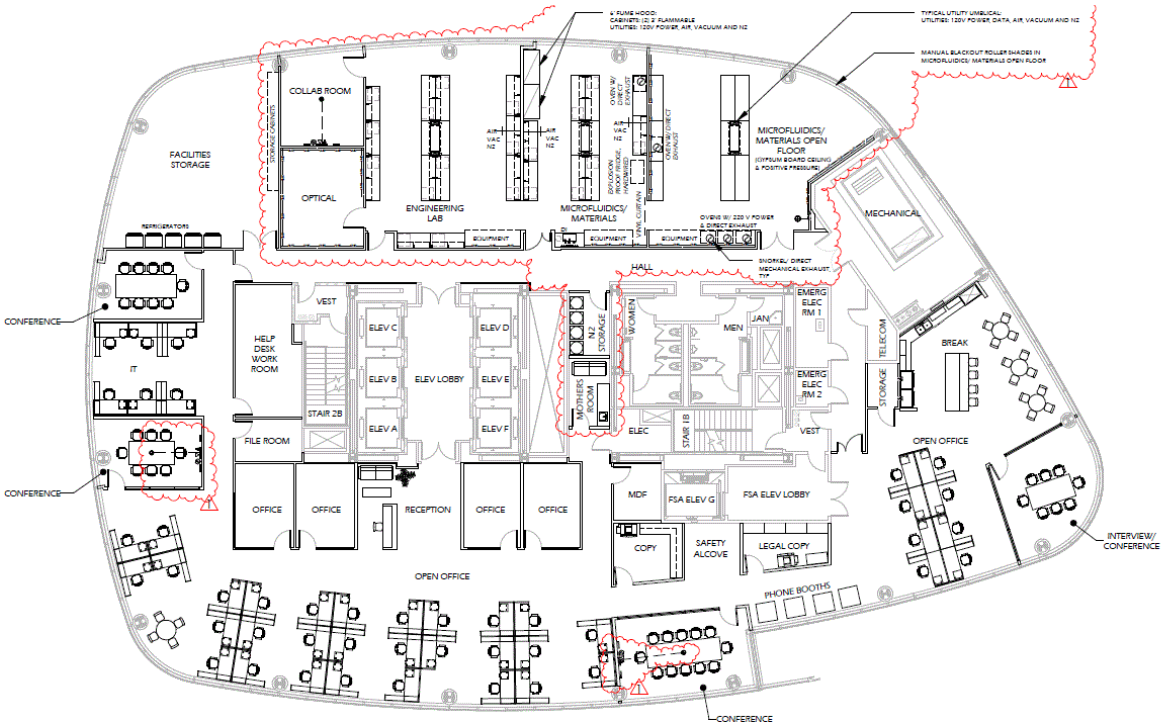
10/24/18 REVISIONS

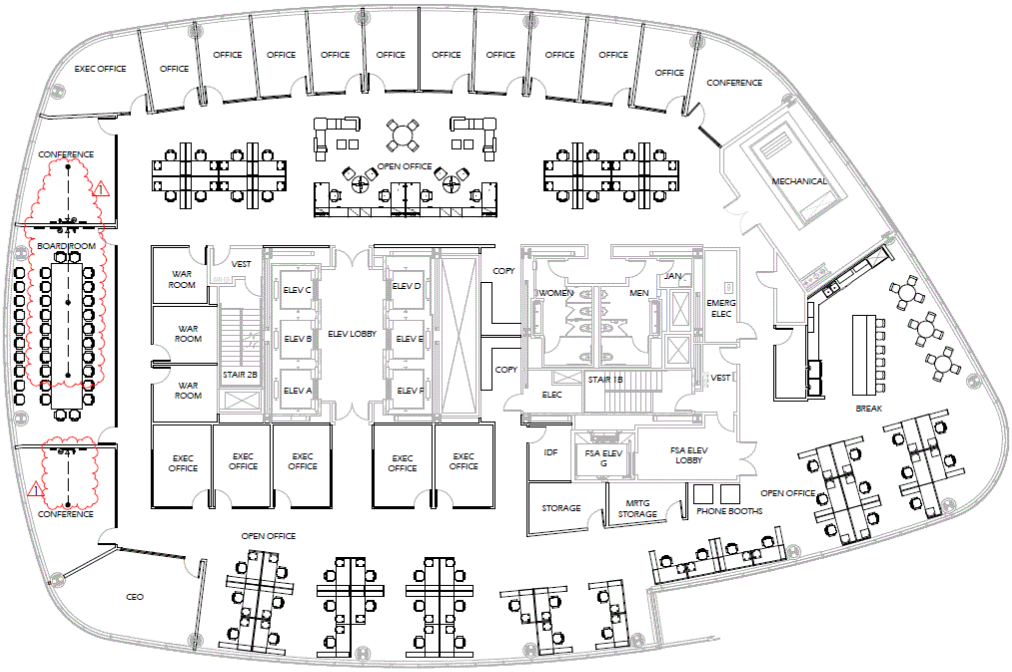
McFARLANE ARCHITECTS | PHASE3 | GENESIS



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 20 - FLUIDIGM
1/16" = 1'-0"

10-24-18

McFARLANE ARCHITECTS PHASE3 GENESIS



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 21 - FLUIDIGM

1/16" = 1'-0"

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10/24/18 REVISIONS

McFARLANE ARCHITECTS

PHASE3 DEVELOPMENT

GENESIS

EXHIBIT A
-5-

879352.05/SD
374622-00001/3-28-19/MLT/bp

GENESIS SSF - TWO TOWER PLACE
[Fluidigm Corporation]

EXHIBIT A-1

SITE PLAN OF PROJECT

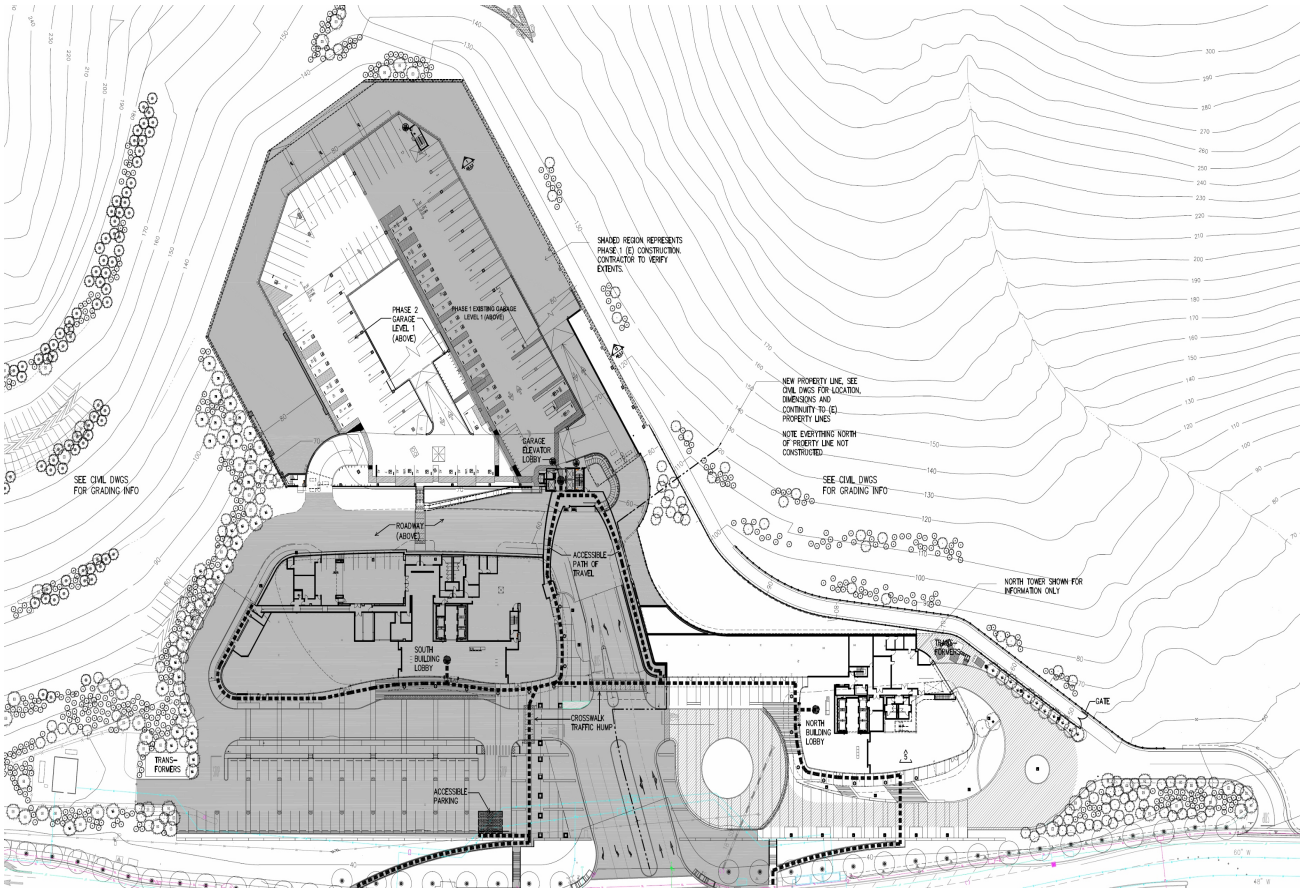


EXHIBIT B

TENANT WORK LETTER

This Tenant Work Letter ("**Tenant Work Letter**") sets forth the terms and conditions relating to the construction of improvements for the Premises. All references in this Tenant Work Letter to the "**Lease**" shall mean the relevant portions of the Lease to which this Tenant Work Letter is attached as **Exhibit B**.

SECTION 1

BASE, SHELL AND CORE

Landlord has previously constructed the base, shell and core (i) of the Premises and (ii) of the floor(s) of the Building on which the Premises are located (collectively, the "**Base, Shell and Core**"), and Tenant shall accept the Base, Shell and Core in its current "As-Is" condition existing as of the date of the Lease and the Lease Commencement Date. A description of the Base, Shell and Core is attached hereto as **Schedule 2**. The work described in this Section 1 shall be referred to herein as "**Landlord's Work**". Except for the Landlord's Work, the Allowance set forth below (and, if applicable, the Additional Allowance) and as otherwise provided below, Landlord shall not be obligated to make or pay for any alterations or improvements to the Premises, the Building or the Project.

SECTION 2

CONSTRUCTION DRAWINGS FOR THE PREMISES

Prior to the execution of the Lease, Landlord and Tenant have approved detailed space plans for the construction of certain improvements in the Premises, which space plans have been prepared by McFarlane, dated October 24, 2018 (collectively, the "**Final Space Plan**"), which Final Space Plan is attached hereto as **Schedule 1**. Based upon and in conformity with the Final Space Plan, Landlord shall cause its architect and engineers to prepare and deliver to Tenant, for Tenant's approval, detailed specifications and engineered working drawings for the tenant improvements shown on the Final Space Plan (the "**Working Drawings**"). The Working Drawings shall incorporate modifications to the Final Space Plan as necessary to comply with the floor load and other structural and system requirements of the Building. To the extent that the finishes and specifications are not completely set forth in the Final Space Plan for any portion of the tenant improvements depicted thereon, the actual specifications and finish work shall be in accordance with the specifications for the Building's standard tenant improvement items, as set forth on Schedule 3 and as otherwise reasonably determined by Landlord, subject to Tenant's reasonable approval. Within three (3) business days after Tenant's receipt of the Working Drawings, Tenant shall approve or disapprove the same, which approval shall not be unreasonably withheld; provided, however, that Tenant may only disapprove the Working Drawings to the extent such Working Drawings are inconsistent with the Final Space Plan and only if Tenant delivers to Landlord, within such three (3) business day period, specific changes proposed by Tenant which are consistent with the Final Space Plan and do not constitute changes which would result in any of the circumstances described in items (i) through (iv) hereinbelow. If any such revisions are timely and properly proposed by Tenant, Landlord shall cause its architect and engineers to revise the Working Drawings to incorporate such revisions and submit the same for Tenant's approval in accordance with the foregoing provisions, and the parties shall follow the foregoing procedures for approving the Working Drawings until the same are finally approved by Landlord and Tenant. Upon Landlord's and Tenant's approval of the Working Drawings, the same shall be known as the "**Approved Working Drawings**". The tenant improvements shown on the Approved Working Drawings shall be referred to herein as the "**Tenant Improvements**". Once the Approved Working Drawings have been approved by Landlord and Tenant, Tenant shall make no changes, change orders or modifications thereto without the prior written consent of Landlord, which consent may be withheld in Landlord's sole discretion if such change or modification would: (i) delay the Substantial Completion of the Premises (as defined below), unless Tenant agrees (in writing) that such delay in the amount specified by Landlord is a Tenant Delay; (ii) increase the costs of the design, permitting or construction of the Tenant Improvements above the costs of the design, permitting and construction of those tenant improvements depicted in the Final Space Plan, unless Tenant agrees (in writing) to pay (and does pay) such increase in the amount specified by Landlord; (iii) be of a quality lower than the quality of the standard tenant improvement items for the Building; and/or (iv) require any changes to the Base, Shell and Core or

structural improvements or systems of the Building. The Final Space Plan, Working Drawings and Approved Working Drawings shall be collectively referred to herein as, the "**Construction Drawings**".

SECTION 3

CONSTRUCTION AND COSTS OF TENANT IMPROVEMENTS

Landlord shall enter into a construction contract for the performance of the Tenant Improvements with the general contractor that it engages to perform the tenant improvements on floors 11-17 of the Building (the "**Contractor**") on terms substantially consistent with the terms of Landlord's contract with the Contractor for the other tenant improvements, including the same contractor's fee and, subject to market fluctuations, unit pricing; the general conditions shall be billed proportionately based on the work performed by the Contractor on other floors of the Building. Landlord shall use commercially reasonable efforts to obtain at least three (3) bids from each trade (other than mechanical, electrical, plumbing and fire/life safety) and shall select the lowest qualified bidder unless otherwise approved by Tenant. Prior to entering into such contract, Landlord shall deliver to Tenant a copy of the Contractor's bid for the Tenant Improvements, and all work with respect to such contract shall be on an open book basis. Landlord shall cause the Contractor to (i) obtain all applicable building permits for construction of the Tenant Improvements (collectively, the "**Permits**"), and (ii) construct the Tenant Improvements as depicted on the Approved Working Drawings, in compliance with such Permits and all applicable laws in effect at the time of construction, and in good workmanlike manner. Landlord shall pay for the costs of the design, permitting and construction of the Tenant Improvements in an amount up to, but not exceeding, One Hundred Seventy-Six and 00/100 Dollars ($176.00) per rentable square foot of the Premises (i.e., up to Eleven Million Nine Hundred Twenty-Three Thousand Two Hundred Ninety-Six and 00/100 Dollars ($11,923.296.00), based on 67,746 rentable square feet of the Premises) (the "**Allowance**"). The cost of the design, permitting and construction of the Tenant Improvements shall include Landlord's construction supervision and management fee in an amount equal to the sum of (A) the product of (i) four percent (4%) and (ii) the amount equal to the sum of the Allowance and the Additional Allowance (if applicable) used by Tenant, and (B) the product of (i) three percent (3%) and (ii) the amount equal to the Over-Allowance Amount (as such term is defined below) in excess of the portion of the Additional Allowance Tenant elects to use. In any event, such construction supervision and management fee shall be deducted by Landlord from the Allowance and, if applicable, the Additional Allowance. Tenant shall pay for all costs of the design, permitting and construction of the Tenant Improvements in excess of the Allowance ("**Over-Allowance Amount**-"), which payments shall be made to Landlord in cash in installments within thirty (30) days after Tenant's receipt of an invoice thereof from Landlord (which may be made no more often than monthly) as Landlord incurs such expenses in an amount equal to a fraction of such expenses, the numerator of which is the Over-Allowance Amount (less the amount of the Additional Allowance Tenant elects to use) and the denominator of which is the sum of the Allowance and the Over-Allowance Amount. If Tenant requests any changes, change orders or modifications to the Approved Working Drawings (which Landlord approves pursuant to Section 1 above) which increase the costs of the design, permitting and construction of the Tenant Improvements, Tenant shall pay such increased cost to Landlord within thirty (30) days after Landlord's request therefor, and, in any event, prior to the date Landlord causes the Contractor to commence construction of the changes, change orders or modifications. In no event shall Landlord be obligated to pay for, nor shall the Tenant Improvement Allowance be used to pay for, the costs of any of Tenant's furniture, computer systems, telephone systems, equipment or other personal property which may be depicted on the Construction Drawings; the costs of such items shall be paid for by Tenant from Tenant's own funds. Tenant shall not be entitled to receive in cash or as a credit against any rental or otherwise, any portion of the Allowance not used to pay for the costs of the design, permitting and construction of the Tenant Improvements. Notwithstanding the foregoing, the Over-Allowance Amount shall not include (and Landlord shall be solely responsible for and the Allowance shall not be used for) the following: (a) costs incurred due to the presence of Hazardous Materials in the Premises or the surrounding area; (b) attorneys' fees incurred in connection with negotiation of construction contracts, and attorneys' fees and other costs in connection with disputes with third parties; (c) interest and other costs of financing construction costs; (d) costs incurred as a consequence of delay (other than Tenant Delays), construction defects or default by a contractor; (e) restoration costs as a consequence of casualties; (f) penalties and late charges attributable to Landlord failure to pay construction costs; (g) costs to bring the Project into compliance with applicable laws; (h) overtime and premium time unless approved by Tenant; (i) management, supervision fees or overhead costs incurred by Landlord except the fee described above; and (j) construction costs in excess of the approved bid from the Contractor, except for increases set forth in approved change orders.

Any amount of the Allowance and the Additional Allowance unused by Landlord after the expiration of the first (1st) annual anniversary of the Lease Commencement Date shall be retained by Landlord. Notwithstanding anything above to the contrary, in the event there exists an Over-Allowance Amount, Tenant shall have the option, exercisable upon written notice to Landlord prior to the date Tenant is obligated to pay such Over-Allowance Amount, to receive an allowance (the "**Additional Allowance**") in the amount not to exceed Twenty-Five Dollars ($25.00) per rentable square foot of the Premises, (i.e., up to One Million Six Hundred Ninety-Three Thousand Six Hundred Fifty and 00/100 Dollars ($1,693,650.00) based on 67,746 rentable square feet in the Premises). In the event Tenant exercises such option and as consideration for Landlord providing such Additional Allowance to Tenant, the Base Rent payable by Tenant throughout the entire one hundred twenty-three (123) month initial Lease Term ("**Amortization Period**") shall be increased by an amount sufficient to fully amortize such Additional Allowance throughout said one hundred twenty-three (123) month period based upon monthly payments of principal and interest, with interest imputed on the outstanding principal balance at the rate of nine percent (9%) per annum (the "**Amortization Rent**"). By way of illustration, if Tenant utilizes the entire Additional Allowance then the initial Base Rent payable by Tenant under this Lease shall be increased by Twenty-One Thousand One Hundred Thirty-One Dollars and 70/100 ($21,131.70) per month (and such amount shall be subject to the three and one-half percent (3.5%) annual increases set forth in Section 8 of the Summary). In such event, Section 8 of the Summary shall be revised to reflect such increased Base Rent for all time periods under this Lease. Such revised Base Rent schedule shall be memorialized in an amendment to this Lease to be executed by Landlord and Tenant.

SECTION 4

READY FOR OCCUPANCY; SUBSTANTIAL COMPLETION OF THE TENANT IMPROVEMENTS

4.1 Ready for Occupancy; Substantial Completion. For purposes of the Lease, including for purposes of determining the Lease Commencement Date (as set forth in Section 7.2 of the Summary): (i) the Premises shall be "**Ready for Occupancy**" upon Substantial Completion of the Premises; and delivery of the Premises to Tenant in good, vacant, broom clean condition, with all Systems and Equipment serving the Premises in good operating condition, in compliance with law; and (ii) "**Substantial Completion of the Premises**" shall occur upon (x) the completion of construction of the Tenant Improvements in the Premises pursuant to the Approved Working Drawings and Landlord's Work in compliance with law, with the exception of any punch list items that do not materially and adversely affect Tenant's use and occupancy of the Premises and any tenant fixtures, work-stations, built-in furniture, or equipment to be installed by Tenant or under the supervision of the Contractor and (y) the issuance of a temporary certificate of occupancy or its functional equivalent from the applicable governmental authority for Landlord's Work and the Tenant Improvements.

4.2 Delay of the Substantial Completion of the Premises. If there shall be a delay or there are delays in the Substantial Completion of the Premises as a result of any of the following (collectively, "**Tenant Delays**"):

4.2.1 Tenant's failure to timely approve the Working Drawings or any other matter requiring Tenant's approval;

4.2.2 a breach by Tenant of the terms of this Tenant Work Letter or the Lease;

4.2.3 Tenant's request for changes in any of the Construction Drawings in the amount of the delay actually incurred by Landlord on account of such change but only if the same actually delays Substantial Completion of the Premises;

4.2.4 Tenant's requirement for materials, components, finishes or improvements which are not available in a commercially reasonable time given the estimated date of Substantial Completion of the Premises, as set forth in the Lease, or which are different from, or not included in, Landlord's standard tenant improvement items for the Building in the amount of delay actually incurred by Landlord on account of such change but only if the same actually delays Substantial Completion of the Premises; or

4.2.5 any other acts or omissions of Tenant, or its agents, or employees that continue more than one (1) day after written notice thereof by Landlord;

then, notwithstanding anything to the contrary set forth in the Lease and regardless of the actual date of Substantial Completion of the Premises, the Lease Commencement Date (as set forth in Section 7.2 of the Summary) shall be deemed to be the date the Lease Commencement Date would have occurred if no Tenant Delay or Delays, as set forth above, had occurred. Landlord shall deliver to Tenant at the time Landlord approves a request by Tenant pursuant to Sections 4.2.3 or 4.2.4 above, a reasonable, good faith estimate of any delay in Substantial Completion that will result from the change after consultation with the Contractor. In connection therewith, Landlord shall endeavor to obtain a change order from the Contractor with a specified amount of such delay and, if it is able to obtain such specified amount, Landlord shall notify Tenant thereof, at the time it approves the request and the amount of Tenant Delay shall not exceed such amount.

SECTION 5

MISCELLANEOUS

5.1 Tenant's Entry Into the Premises Prior to Substantial Completion. Subject to the terms hereof and provided that Tenant and its agents do not interfere with the Contractor's work in the Project, the Building and the Premises, Landlord shall allow Tenant access to the Premises at least thirty (30) days prior to the Substantial Completion of the Premises for the purpose of Tenant installing equipment and/or fixtures (including Tenant's data and telephone equipment) and Tenant's furniture in the Premises. Prior to Tenant's entry into the Premises as permitted by the terms of this Section 5.1, Tenant shall submit a schedule to Landlord and the Contractor, for their approval, which schedule shall detail the timing and purpose of Tenant's entry. In connection with any such entry, Tenant acknowledges and agrees that Tenant's employees, agents, contractors, consultants, workmen, mechanics, suppliers and invitees shall fully cooperate, work in harmony and not, in any manner, interfere with Landlord or Landlord's contractors (including the Contractor), agents or representatives in performing work in the Project, the Building and the Premises, or interfere with the general operation of the Building and/or the Project. If at any time any such person representing Tenant shall not be cooperative or shall otherwise cause or threaten to cause any such disharmony or interference, including, without limitation, labor disharmony, and Tenant fails to immediately institute and maintain corrective actions as directed by Landlord, then Landlord may revoke Tenant's entry rights upon twenty-four (24) hours' prior written notice to Tenant. Tenant acknowledges and agrees that any such entry into and occupancy of the Premises or any portion thereof by Tenant or any person or entity working for or on behalf of Tenant shall be deemed to be subject to all of the terms, covenants, conditions and provisions of the Lease, excluding only the covenant to pay Rent (until the occurrence of the Lease Commencement Date). Such requirements shall include, without limitation, that Tenant and any other parties allowed access to the Premises shall provide Landlord with evidence of insurance as required by Landlord. Tenant further acknowledges and agrees that Landlord shall not be liable for any injury, loss or damage which may occur to any of Tenant's work made in or about the Premises in connection with such entry or to any property placed therein prior to the Lease Commencement Date, the same being at Tenant's sole risk and liability. Tenant shall be liable to Landlord for any damage to any portion of the Premises, including the Tenant Improvement work, caused by Tenant or any of Tenant's employees, agents, contractors, consultants, workmen, mechanics, suppliers and invitees. If the performance of Tenant's work in connection with such entry causes extra costs to be incurred by Landlord or requires the use of any Building services, and Landlord promptly delivers Tenant written notice thereof, Tenant shall promptly reimburse Landlord for such extra costs and/or shall pay Landlord for such Building services at Landlord's standard rates then in effect. In addition, Tenant shall hold Landlord harmless from and indemnify, protect and defend Landlord against any loss or damage to the Premises or Project and against injury to any persons caused by Tenant's actions pursuant to this Section 5.1.

5.2 Tenant's Representative. Tenant has designated Karren Jamaca as its sole representative with respect to the matters set forth in this Tenant Work Letter, who shall have full authority and responsibility to act on behalf of the Tenant as required in this Tenant Work Letter.

5.3 Landlord's Representative. Landlord has designated Adam Cashner as its sole representative with respect to the matters set forth in this Tenant Work Letter, who, until further notice to Tenant, shall have full authority and responsibility to act on behalf of the Landlord as required in this Tenant Work Letter.

5.4 Time of the Essence in This Tenant Work Letter. Unless otherwise indicated, all references herein to a "number of days" shall mean and refer to calendar days. If any item requiring approval is timely disapproved by Landlord, the procedure for preparation of the document and approval thereof shall be repeated until the document is

approved by Landlord. Both Landlord and Tenant shall use commercially reasonable, good faith, efforts and all due diligence to cooperate with each other to complete all phases of the Construction Drawings and the permitting process and to receive the permits, as soon as possible after the execution of the Lease, and, in that regard, shall meet on a scheduled basis to be determined by Landlord and Tenant, to discuss progress in connection with the same.

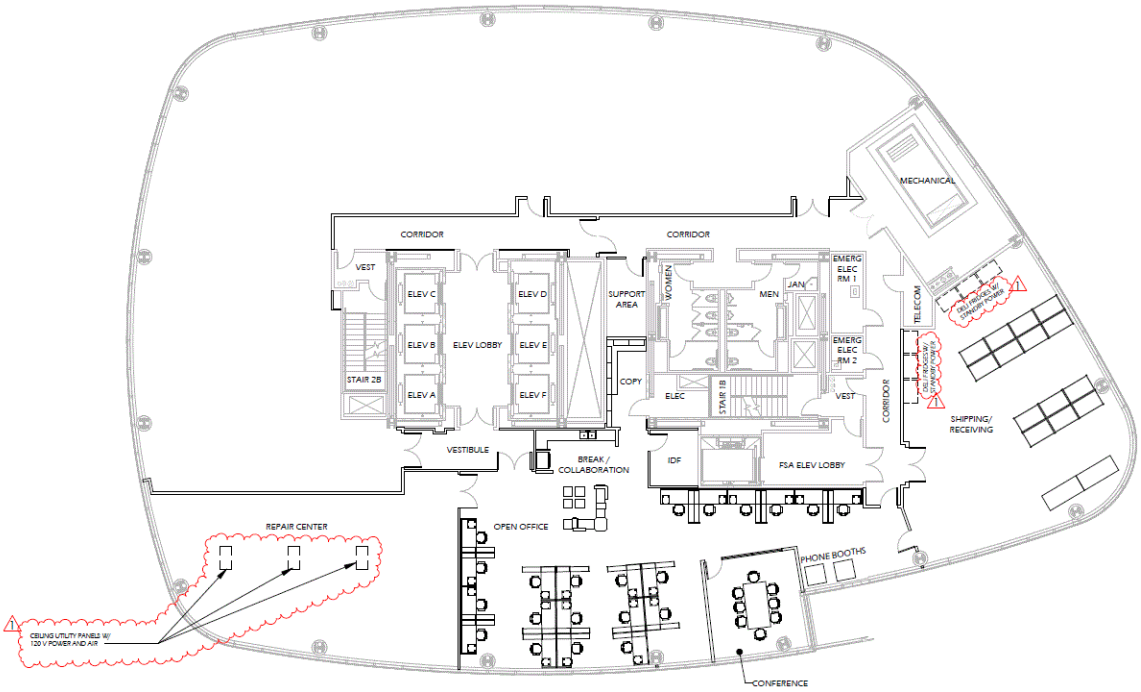
5.5 Tenant's Lease Default. Notwithstanding any provision to the contrary contained in the Lease, if an event of default by Tenant as described in Section 19.1 of the Lease or any default by Tenant under this Tenant Work Letter has occurred at any time on or before the Substantial Completion of the Premises and remains after the expiration of applicable notice and cure periods, then (i) in addition to all other rights and remedies granted to Landlord pursuant to the Lease, at law or in equity, Landlord shall have the right to withhold payment of all or any portion of the Allowance and/or Landlord may cause the Contractor to suspend the construction of the Premises (in which case, Tenant shall be responsible for any delay in the Substantial Completion of the Premises caused by such work stoppage as a Tenant Delay as set forth in Section 4.2 above), and (ii) all other obligations of Landlord under the terms of this Tenant Work Letter shall be forgiven until such time as such default is cured pursuant to the terms of the Lease (in which case, Tenant shall be responsible for any delay in Substantial Completion of the Premises caused by such inaction by Landlord as a Tenant Delay).

5.6 Warranties. Landlord hereby assigns to Tenant all warranties by Contractor relating to the Tenant Improvements, which assignment shall be on a non-exclusive basis such that the warranties may be enforced by Landlord and/or Tenant; such warranties shall be for a twelve (12) month period.

SCHEDULE 1

FINAL SPACE PLAN

[See Attached]



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 18 - FLUIDIGM
1/16" = 1'-0"

10-24-18

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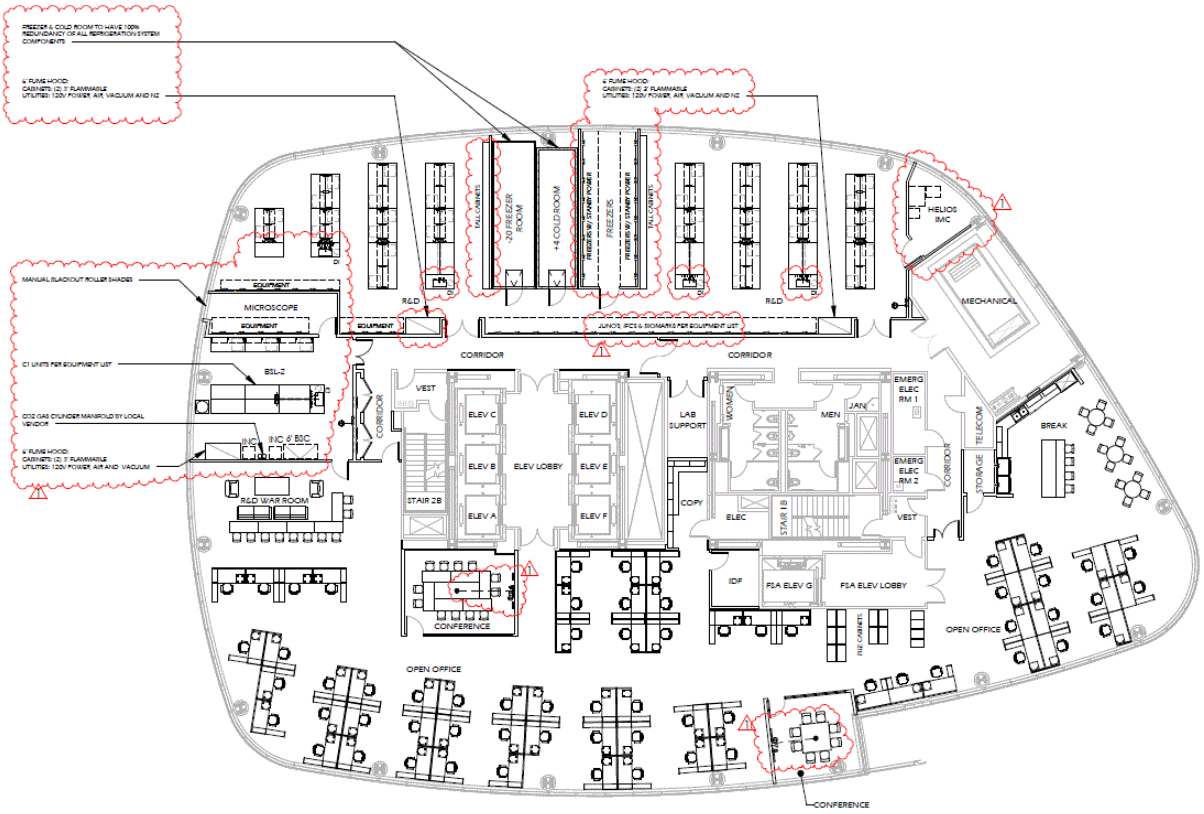
10/24/18 REVISIONS

MCFARLANE ARCHITECTS

PHASE3 GENESIS



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 19 - FLUIDIGM
1/16" = 1'-0"

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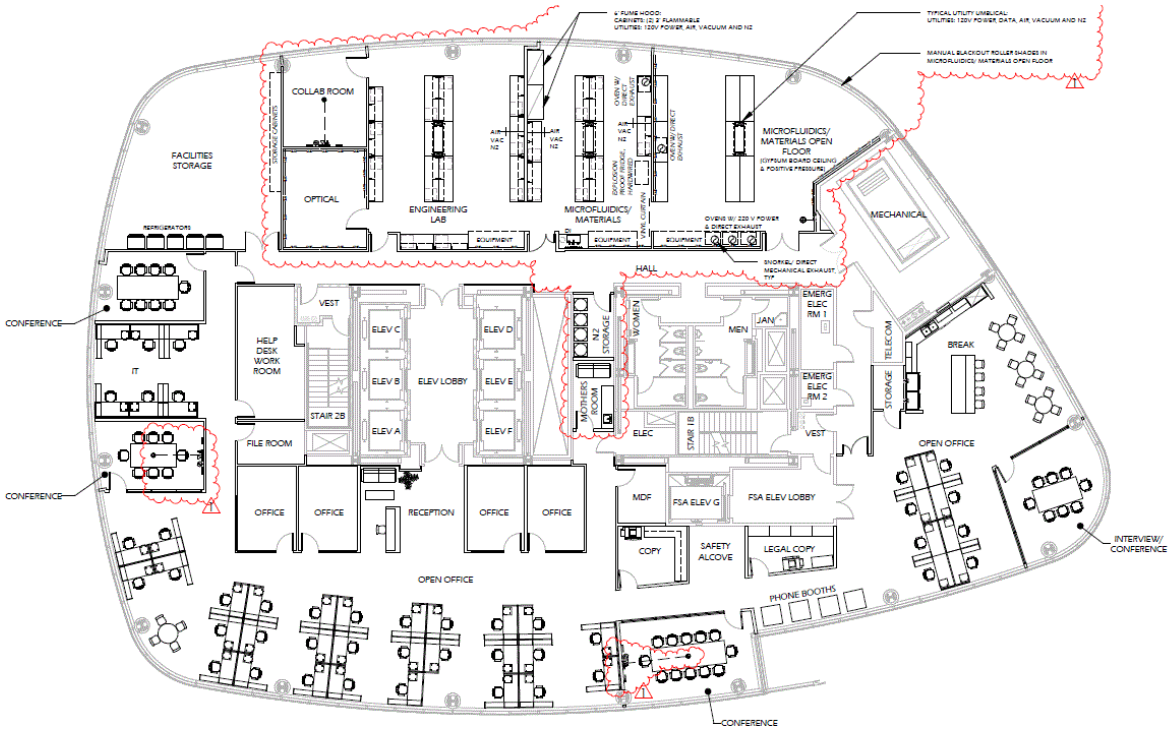
1 10/24/18 REVISIONS

McFARLANE ARCHITECTS | PHASE3 REAL ESTATE PARTNERS | GENESIS



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 20 - FLUIDIGM

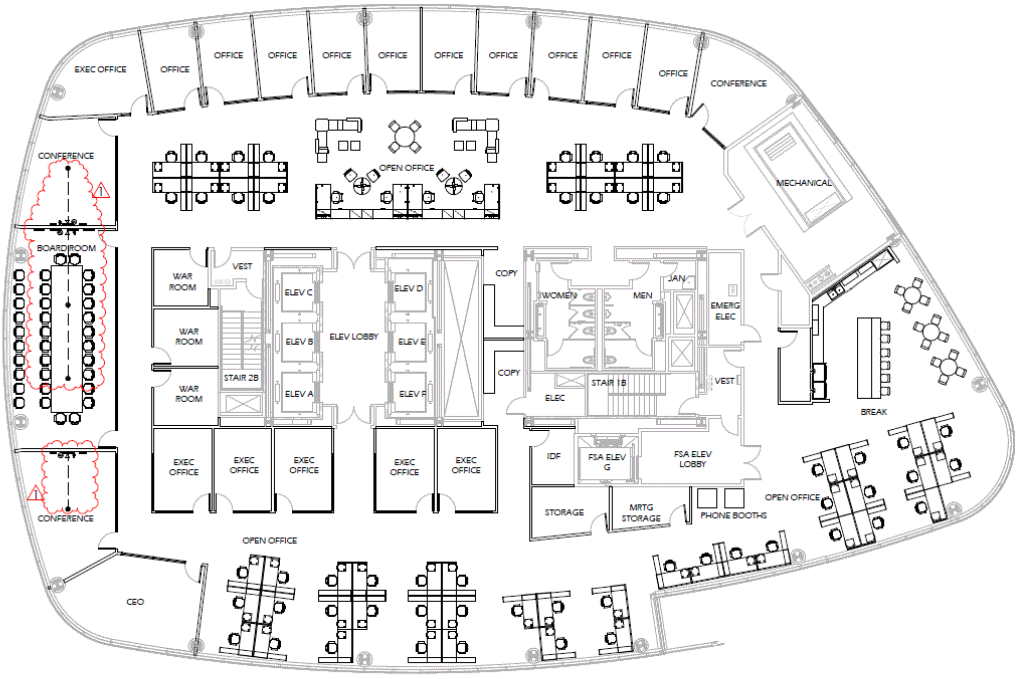
1/16" = 1'-0"

10-24-18

McFARLANE ARCHITECTS

PHASE3

GENESIS



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 21 - FLUIDIGM

1/16" = 1'-0"

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10/24/18 REVISIONS

McFARLANE ARCHITECTS

PHASE3 GENESIS

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SCHEDULE 1
-5-

GENESIS SSF - TWO TOWER PLACE
[Fluidigm Corporation]

SCHEDULE 2

BASE, SHELL AND CORE

[See attached]

PHASE3

BASE BUILDING "WARM SHELL" DELIVERY CONDITION

GENESIS SOUTH SAN FRANCISCO - 2 TOWER PLACE (NORTH TOWER)

Sitework

Exterior hardscape and landscape, including site lighting, sidewalks, site curbs, miscellaneous site furnishings
Foundation and enclosure for Landlord provided emergency generator
At-grade shipping/receiving area

Structure

Steel superstructure consisting of steel columns, beams, brace frames and concrete slab on composite metal deck, with live load capacity of 100 psf (non-reducible) + 17 psf partitions at lab areas and 80 psf (reducible) + 17 psf at office areas.
Type 1A construction; code required fireproofing with firesafing at the edge of slab of each floor
Lateral seismic system utilizing brace frames and perimeter moment frames. Importance factor 1.0
Roof Screen
Floor-to-floor height 13'-0" typical for floors 2-20; 18'-0" at 1st floor and 14'-0" at 21st floor
Structural Bay varies: 29'-6" x 35'-0" average
Stairs and stair enclosures per code requirements
Roof penthouse access
Window washing system

Roofing

Single ply thermoplastic roof membrane (Sika Sarnafil G410 Energysmart Roof Membrane) with walking pads
Rigid insulation, flashing, and sealants

Exterior

Glazed aluminum curtain wall system with aluminum sunshade fins and aluminum louvers
Plaster finish at first floor service areas and roof penthouse
Building entrances and openings

Common Areas

Main Lobby with reception/security desk, seating area, and enhanced fireplace design
First floor common conference rooms. Various sizes: 12 seat, 14 seat, 18 seat, 20 seat
First floor Fire Command Room, Mail Room, Building Security Room
Main Electrical room and Main Emergency Electrical Room
First floor at-grade shipping and receiving loading dock and service entry
Telecommunications Main Point of Entry (Tel/MPOE) room
Telecom room on each tenant floor for house providers.
Passenger elevator service room and elevator control panel room
Plumbing equipment (Lab Utilities) room

Elevators

Six (6) passenger elevators. Capacity: 3,500 lbs.; Speed 350 fpm
One (1) service elevators. Capacity: 5,000 lbs.; Speed 350 fpm
No elevator access to Roof

Base Building Core

Restroom Cores: one (1) set per floor including Men's and Women's Restrooms with ceramic tiles floors and wet walls, solid surface countertops, toilet partitions, hard lid ceiling with downlights, and low-flow plumbing fixtures
Janitor Closet: one (1) per floor
Full height, sound attenuated wall construction at restroom core to underside of slab
Emergency Power Electrical Rooms: two (2) per floor

Normal Power Electrical Room: one (1) per floor
Telecomm / Base Building IDF Room: one (1) per floor
Shaft enclosures for Base Building system risers

Fire Protection

Wet fire protection system (risers, distribution piping and sprinkler heads throughout)
Fire extinguishers in semi-recessed wall cabinets at core areas
Fire safing at Base Building vertical penetrations per code requirement, including penetrations for mechanical, electrical, and plumbing systems
Fire Alarm

Plumbing

Building supplied lab air compressors on Emergency Power with branch lines to each floor
Building supplied lab vacuum pumps on Emergency Power with branch lines to each floor
Building supplied domestic water heaters
Natural gas for building boilers only, not available for Tenant use
Domestic hot and cold water service provided at each floor with water meter
Lab waste and lab waste vent provided for each floor with capped branches
Sanitary waste and vent systems provided at each floor
Code compliant core restrooms: (2) water closets, (2) urinals and (2) lavatories in Men's restroom. (4) water closets and (2) lavatories in Women's restroom
Janitor's closet with housekeeping service sink on each floor

HVAC

Two (2) 700 Ton water cooled chillers
One (1) two-cell open cooling tower
Three (3) 4,000 MBH heating hot water boilers
Secondary mechanical equipment includes, pumps, valves, piping and ductwork to support base building mechanical Lab

Lab HVAC-All labs are 100% exhausted/single pass air via supply and exhaust duct work. Supply air is provided by One (1) 21,000 CFM air handler dedicated to each floor. Exhaust air is provided by Three (3) 80,000 CFM exhaust fans, for a total building capacity of 240,000 CFM. Each lab area of each floor is allotted 12,000 CFM of exhaust via Two (2) subduct stub-outs from the main exhaust duct each capable of 6,000 CFM

Office HVAC-Office areas are recirculated air with code required supplemental outside air.
Supply air is ducted and return air is via a register at the air handler room. Supply air is provided by the 21,000 CFM air handler that is dedicated to each floor. The air handler is equipped with MERV 8 pre-filters and MERV 14 final filters (not rated to remove odors)

Heating hot water piping stub outs on each floor allow for zone reheat coils.
Secondary condenser water loop with stub outs on each floor to allow for connection of a water source heat pump
Ventilation for base building electrical rooms
Restroom exhaust for base building restrooms
Building Management System (BMS) for core area and landlord infrastructure
Smoke Control System

Electrical

Two (2) 4,000A 480/277V Electrical Services for the base building. Bus duct risers provide 225A at 480V of normal power to each floor, and there is a 75kW 208V transformer for normal power.

Two (2) 1500 kW generators serve the legally required, fire-life safety, and standby power loads. Bus duct risers provide 36kW to each floor for standby power.

Separate lighting, power, and mechanical panelboards at each floor to serve tenant loads

Telecommunications

Underground conduits bring in multiple service provider/carrier fiber and copper cabling to the MPOE room. Distribution of

Service provider copper and fiber terminations in MPOE extend up to telcom rooms on each floor.

Ten (10) 4" Conduits from MPOE to Distributed Antenna System (DAS) room
Eight (8) 4" Conduits from level 1 DAS room to IDF riser stack starting on level 2
Core space equivalent to (8) 4" conduits in each IDF room for backbone cabling
Two (2) 4" Conduits from MPOE to Facilities Telecom Room
2" Conduits to roof for DAS GPS unit
Fiber and copper termination equipment installed in base building IDFs for tenant connection
Pathway (firestopping assemblies and conduits from building IDF into tenant space for tenant connection to backbone
Cellular carrier fiber from MPOE to DAS room
Cellular carrier equipment installed in DAS room (by carriers) DAS headend equipment installed in DAS room
DAS remotes installed in specified IDF rooms

SCHEDULE 3

TENANT IMPROVEMENT BUILDING STANDARDS

Genesis North
2 Tower Place,
South San Francisco, CA 94080
Tenant Improvement Building Standards

1.0 PARTITIONS

1.1 DEMISING WALL - ONE HOUR FIRE RESISTIVE CONSTRUCTION

One Hour Fire Resistive Wall will be constructed to demise tenant spaces with 3 5/8" x 20 gauge metal studs at 16" O.C. Wall is to extend full height from floor to underside of structure above with 5/8" Type "X" gypsum wallboard on each side of studs. Gypsum wallboard shall be taped and finished with joint compound to a Level 4 finish and painted. The stud cavity shall be filled with sound attenuation insulation.

1.2 INTERIOR PARTITIONS

Interior partitions will be constructed with 3 5/8" x 20 gauge metal studs at 16" O.C. Walls are to extend 6" above adjacent ceilings with 5/8" gypsum wallboard placed on each side of studs. Gypsum wallboard shall be taped and finished with joint compound to a Level 4 finish, with the stud cavity being filled with sound attenuation insulation in partitions between offices and conference rooms. Where no ceilings occur, partitions to extend full height to underside of structure above. Exceptions:

1.2.1 Lab: Interior Partitions separating lab from lab; or lab from office; or lab from corridor shall extend full height from floor to underside of structure above with 5/8" Type "X" gypsum wallboard on each side of studs. Gypsum wallboard shall be taped and finished with joint compound to a Level 4 finish and painted. The stud cavity shall be filled with sound attenuation insulation.

1.2.2 Private Offices: Interior Partitions will be constructed similar to above but shall extend full height from floor to underside of structure above with 5/8" Type "X" gypsum wallboard on each side of studs. Gypsum wallboard shall be taped and finished with joint compound to a Level 4 finish and painted. The stud cavity shall be filled with sound attenuation insulation.

1.2.3 Conference Rooms: Interior Partitions separating conference rooms from private offices shall extend full height from floor to underside of structure above with (2) layers of 5/8" Type "X" gypsum wallboard on each side of studs. Gypsum wallboard shall be taped and finished with joint compound to a Level 4 finish and painted. The stud cavity shall be filled with sound attenuation insulation.

1.2.4 Glazing within interior partitions shall be at locations as identified within Test Fit / approved Concept Plan.

2.0 WOOD DOORS AND FRAMES

2.1 INTERIOR DOORS

2.1.1 Main suite entry doors (if main entry is from elev. lobby) are to be 60 minute rated, 1 ¾" x 3'-0" x 8'-0" Solid core. VT Industries, Face: plain sliced slip walnut; Finish: TR-6 Clear or equivalent. Other suite entry doors are to be 60 minute rated, 1 ¾" x 3'-0" x 8'-0" Solid core. VT Industries, Face: plain sliced slip walnut; Finish: TR-6 Clear or equivalent.

2.1.2 Office and Conference Room Doors are to be 1 ¾" x 3'-0" x 8'-0" SOLID CORE. VT INDUSTRIES, FACE: PLAIN SLICED SLIP WALNUT; FINISH: TR-6 CLEAR OR EQUIVALENT. Common Area and Support Room Doors are to be 1 ¾" x 3'-0" x 8'-0" solid core. VT INDUSTRIES, FACE: PLAIN SLICED SLIP WALNUT; FINISH: TR-6 CLEAR OR EQUIVALENT.

2.1.3 Laboratory Suite Doors are to be rated where required by code, non-rated elsewhere, 1 ¾" x 3'-0" x 8'-0". Solid core. VT INDUSTRIES, FACE: PLAIN SLICED SLIP WALNUT; FINISH: TR-6 CLEAR OR EQUIVALENT. Each lab will have a pair of doors for large equipment access. Rated doors shall have a narrow lite vision panel not exceeding 100 sq. inches (typical ¼" tempered 4" wide x 25" tall). Nonrated doors shall have a half-lite vision panel consisting of ¼" thick tempered safety glass. Armor plates and kick plates will be provided on Lab doors at appropriate locations.

2.1.4 Lab Support Doors, where provided, are to be rated as required by code, non-rated elsewhere, 1 ¾" x 3'-6" x 8'-0". Solid core. VT INDUSTRIES, FACE: PLAIN SLICED SLIP WALNUT; FINISH: TR-6 CLEAR OR EQUIVALENT. Rated doors shall have a narrow lite vision panel not exceeding 100 sq. inches (typical ¼" tempered 4" wide x 25" tall). NON-RATED doors shall have a half-lite vision panel consisting of ¼" thick tempered safety glass. Armor plates and kick plates will be provided on Lab Support Doors at appropriate locations.

2.2 DOOR AND WINDOW FRAMES

2.2.1 Door and Window frames will be extruded aluminum alloy as manufactured by Western Integrated Materials Inc. Frames will be pre-punched for factory installed 14-gauge butt reinforcement, door strike, and closer hardware. Prefinished frame color to be: CLEAR ANODIZED ALUMINUM.

2.2.2 Rated doors and window frames shall be as required by code, with label ratings for smoke and fire resistance meeting the requirements established by the Underwriters Laboratory (UL). Doors will include smoke seals. Door frames will be extruded aluminum alloy as manufactured by Western Integrated Materials Inc. Frames will be pre-punched for factory installed 14-gauge butt reinforcement, door strike, and closer hardware. Prefinished frame color to be: Clear anodized aluminum.

2.3 FINISH HARDWARE

2.3.1SUITE ENTRY

For solid core wood doors:
Hinges: Three-knuckle, concealed bearing hinges.

a. Manufactures: Ives 3CB Series; Hager AB series, or McKinney TA series
b. Doors up to 36 inches wide: Standard weight, 4-1/2 inches high
c. Doors over 36 inches wide: Heavy weight, 5 inches high
d. Finish: ANSI A8112 steel with steel pin.

Locksets & Security hardware:

a. Passenger Elevator Lobby doors: Electrified door hardware for card reader and electrified door hold open for receipt of TFTI security system.
b. Service Elevator Lobby doors: Electrified door hardware for card reader for receipt of TFTI security system.

Closers: LCN 4040XP series or equivalent conforming with ANSI/BHMA A156.4 Grade 1 requirements.
Floor stop: IVES FS439, Finish: US26D Satin chrome plated.

2.3.2 INTERIOR DOORS

For solid core wood doors:
Hinges: Three-knuckle, concealed bearing hinges.

a. Manufactures: Ives 3CB Series; Hager AB series, or McKinney TA series
b. Doors up to 36 inches wide: Standard weight, 4-1/2 inches high
c. Doors over 36 inches wide: Heavy weight, 5 inches high
d. Finish: ANSI A8112 steel with steel pin.

Locksets:

a. Private Office Doors: Office entry lock set: MORTISE LEVER SCHLAGE L 9000 SERIES, FINISH: 630, US32D, Satin Stainless steel.
b. Conference Room Doors: Passage Set: SCHLAGE L SERIES MORTISE L9010 17A. FINISH: 630, US32D, Satin Stainless steel. REVISIONS TO LOCKSET TFTI.

Floor stop: IVES FS439, Finish: US26D Satin chrome plated.

3.0 CEILINGS

3.1 ACOUSTICAL CEILINGS

Private Offices & Conference Rooms: Ceilings will be 2” x 2” x ¾” ARMSTRONG, ULTIMA TEGULAR FINE TEXTURE, COLOR: WHITE. GLASS-FIBER BASED PANELS TO BE TYPE IV MINERAL BASED WITH MEMBRANE-FACED OVERLAY; FORM 2, WATER FELTED WITH VINYL OVERLAY ON FACE AND BACK OF PANEL. PERFORMANCE CHARACTERISTICS TO MEET THE FOLLOWING:

a. LR: Not less than 0.90.
b. NRC: Not less than 0.70.

ACOUSTICAL PANELS ARE TREATED WITH MANUFACTURER'S STANDARD ANTIMICROBIAL FORMULATION THAT INHIBITS FUNGUS, MOLD, MILDEW, AND GRAM-POSITIVE AND GRAM-NEGATIVE BACTERIA.

SUSPENSION SYSTEM: ARMSTRONG SILHOUETTE NARROW 9/16" WITH ¼" REVEAL; COLOR: WHITE.

3.2 VINYL-FACED CEILINGS

Lab Areas: Ceilings will be 2" x 4" x ½" Certainteed Saint-Gobain, VINYLROCK (#1140 CRF-1), COLOR: WHITE. VINYL-FACED PANELS SHALL BE TYPE XX; HIGH DENSITY, CERAMIC AND MINERAL BASE PANELS WITH SCRUBBABLE FINISH, RESISTANT TO HEAT, MOISTURE, AND CORROSIVE FUMES.

SUSPENSION SYSTEM: Certainteed Saint-Gobain 15/16" trim edge (square); Color: White

3.3 GYPSUM WALLBOARD SOFFITS

Break Areas: Gypsum wallboard soffits will be constructed with 3 5/8" x 20 gauge metal studs at 16" O.C., with 5/8" gypsum wallboard placed on exterior side of studs. Gypsum wallboard shall be taped and finished with joint compound to a Level 4 finish.

3.4 WOOD CEILING GRILLE

RECEPTION / LOBBY AREAS: WOOD CEILING GRILL WILL BE 9WOOD CROSSPIECE WOOD CEILING, 1100 GRILLE OR ARCHITECT'S APPROVED EQUIVALENT.

4.0 LIGHTING FIXTURES

4.1 OFFICE AND LAB AREA LIGHT FIXTURES SHALL BE MIN. 6" WIDE RECESSED LINEAR LED TYPE BY FINELITE OR EQUIVALENT.

4.2 LAB SUPPORT ROOMS SHALL HAVE RECESSED 2'X4' LED FIXTURES.

4.3 ALL LIGHTING SHALL HAVE TITLE 24 COMPLIANT LIGHTING CONTROLS AND SENSORS.

5.0 FINISHES

5.1 CARPET

a. MANUFACTURERS: MANNINGTON, TANDAS CENTIVA, OR ARCHITECT'S APPROVED EQUIVALENT
b. PRODUCT SIZE: AS INDICATED ON DRAWINGS. 6' ROLL POWER-BOND,24" X 24" CARPET TILE, 12" X 48" CARPET PLANK; VARIES PER FINISH OPTION
c. BACKING: PER MANUFACTURER'S RECOMMENDATION
d. FACE WEIGHT: 24 OZ./SQ. YD. MAY VARY PER FINISH OPTION
e. PILE HEIGHT AVERAGE: 0.106 INCH MAY VARY PER FINISH OPTION
f. FIBER SYSTEM: TEXTURED PATTERN LOOP, INVISTA ANTRON LUMENA TYPE 6 HOLLOW FILAMENT NYLON WITH PERMANENT STAIN AND BLEACH PROTECTION, STATIC CONTROL
g. SOIL/STAIN PROTECTION: SURATECH OR EQUIVALENT

5.2 CERAMIC TILE

a. MANUFACTURERS:
   1. FIANDRE
   2. DALTILE
   3. EMIL CERAMICA
   4. AMERICAN OLEAN
   5. OR ARCHITECT APPROVED EQUIVALENT
b. COMPOSITION: VITREOUS, IMPERVIOUS NATURAL CLAY, OR PORCELAIN
c. FACE SIZE: PER DRAWINGS
d. FACE SIZE VARIATION: CALIBRATED OR RECTIFIED
e. THICKNESS: MANUFACTURERS STANDARD
f. DYNAMIC COEFFICIENT OF FRICTION: NOT LESS THAN 0.42.
g. TRIM UNITS: COORDINATED WITH SIZES AND COURSING OF ADJOINING FLAT TILE WHERE APPLICABLE AND MATCHING CHARACTERISTICS OF ADJOINING FLAT TILE. ARCHITECT TO SELECT FROM MANUFACTURER'S FULL RANGE.

5.3 VINYL COMPOSITION TILE

a. Manufacturers:
   1. Armstrong World Industries, Inc.
   2. Johnsonite (Tarkett Group)
   3. Mannington Commercial
b. Tile Standard: ASTM F 1066, Class 1, solid-color
c. Thickness: 0.125 inches
d. Size: 12 by 12 inches and 12 by 24 inches. As indicated on Drawings.

5.4 LUXURY VINYL TILE

a. Manufacturers:
   1. Tandus-Centiva
   2. Johnsonite (Tarkett Group)
   3. Mannington Commercial
b. Tile Standard: ASTM F 1700, Class 3, Type B
c. Thickness: 0.100 to 0.120 inches
d. Size: As indicated on drawings

5.5 HOMOGENOUS VINYL SHEET

a. Manufacturers:
   1. Johnsonite (Tarkett Group); Or ARCHITECT APPROVED EQUIVALENT
b. Classification: ASTM F193, Class 1, Type A
c. Thickness: Wear Layer Thickness ASTM F386 0.80" Gauge; Polyurethane reinforced per ASTM F410
d. Chemical Resistance: Per ASTM F-925
e. Size: Roll length: 75'-9"; Roll width: 6'-6"

5.6 BASE

a. Manufacturers:
   1. Armstrong World Industries, Inc.
   2. Johnsonite (Tarkett Group)
   3. VPI Corporation
b. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
   1. Group: I (solid, homogeneous).
   2. Style and Location: As indicated.
c. Thickness: 0.125 inch
d. Height: 4" high
e. Lengths: Coils in manufacturer's standard length. Pre-cut lengths are not acceptable.
f. Outside Corners: Job formed or preformed.
g. Inside Corners: Job formed or preformed.

5.7 PAINT

Lab and Lab Support Areas: All walls will receive primer coat plus (2) coats of Sherwin Williams, Semi-Gloss Finish; Color: As indicated on drawings. Designated walls shall receive accent paints, choice of Sherwin Williams, Semi-Gloss Finish, Color: As indicated on drawings.

Office Areas: All walls will receive primer coat plus (2) coats of Sherwin Williams, Eggshell Finish; Color: As indicated on drawings. Designated walls shall receive accent paints, choice of Sherwin Williams, Eggshell Finish, Color: As indicated on drawings.

All ceilings and open to structure areas to receive (2) coats of Sherwin Williams, Flat Finish; Color: As indicated on drawings.

6.0 WINDOW TREATMENT

Window Shades at building exterior perimeter windows: Where provided, will be manual-type roller shades by Mechoshade in recessed factory housing accessible within tenant space. Shade Material shall be Thermoveil 1500, Color: 1504 Black/Brown; Density: 3% Open.

7.0 MISCELLANEOUS

7.1 SIGNAGE

One standard building directory sign with suite number and tenant name. Restroom and code required signage.

7.2 ILLUMINATED EXIT SIGNS

Lithonia (or Isolite equal) ceiling mounted illuminated Edge Lit Series with single face universal mount, with universal arrows & green letters.

8.0 BREAKROOM CABINETRY

Cabinetry: Plastic laminate base cabinetry with base cabinets and upper cabinets. Plastic laminated base and uppers: Wilsonart, Designer white #D354-01 (gloss finish). Provide PVC edge banding (0.018 to match plastic laminate)

Solid surface counter tops and splash: Livingstone L104 Brisk with glass mosaic tile back splash

Plumbing Fixtures: Sink is to be stainless steel, undercounter mount, ADA depth, with a ADA single handle deck mounted kitchen faucet with gooseneck spout.

9.0 LABORATORY CASEWORK AND FUME HOODS

12.1 Casework: Labs will be furnished with modular, mobile metal laboratory casework manufactured by iLab, Inc. Countertops will be chemical resistant epoxy/phenolic resin. Island benches shall be pre-piped for Compressed Air and Lab Vacuum with quick disconnect connections located above the ceiling. Benches with sinks will have a single basin epoxy sink (21" x 15" x 10" deep). Sink cabinets shall have a hot and cold water mixing faucet with a counter mounted eyewash. Sinks at island benches will have a stainless-steel glassware pegboard with drip tray and drain hose. Benches will be pre-wired with factory installed single channel raceways for power. Receptacles will be GFI at wet benches and color coded for normal (grey) and emergency (red) power uses.

12.2 Fume Hoods: Fume Hoods will be 6' wide, bench top hoods with a combination sash. Hoods will be factory pre-piped and pre-wired for Vacuum, Compressed Air and normal power on each fume hood post. Hoods will be provided with self-closing acid and flammable storage cabinet bases.

NOTES:

1. Each prospective build-out, including but not limited to electrical, mechanical and plumbing design shall be reviewed and verified prior to commencement of Construction Documents and is subject to Landlord's review and approval.

2. Upgraded items beyond Building Standards include, but are not limited to, the following:

    1. Cabinetry beyond that shown in drawings
    2. Upgraded Carpet.
    3. Interior Windows (beyond approved side light window)
    4. Gypsum Board and Acoustical Ceilings
    5. Additional sound attenuation insulation above acoustical ceiling tiles
    6. Plumbing, beyond stainless steel standard
    7. Architectural Features (i.e. Light Soffit, Curved Walls, etc., not shown on spec plan)
    8. Wallcoverings
    9. Dedicated or Higher Voltage Electrical Outlets
    10. 24 Hour Cooling
    11. Interior design and drawings for above noted upgrades
    12. Customized lab design

3. The following items are responsibility of the Tenant and are excluded from the Owner's scope of work to be provided:

    1. Security/Access Control within the Tenant Suite.
    2. Signage beyond Code required egress signage.
    3. Audio/Visual systems
    4. Data distribution within the Tenant Suite
    5. Server Room HVAC / Dedicated system

UPS systems for Tenant Equipment.

[To be provided]

EXHIBIT C

CONFIRMATION OF LEASE TERMS/AMENDMENT TO LEASE

This CONFIRMATION OF LEASE TERMS/AMENDMENT TO LEASE ("**Confirmation/Amendment**") is made and entered into effective as of _____, 20__, by and between AP3-SF3 CT NORTH, LLC, a Delaware limited liability company ("**Landlord**") and FLUIDIGM CORPORATION, a Delaware corporation ("**Tenant**").

R E C I T A L S:

A. Landlord and Tenant entered into that certain Lease dated as of _____ (the "**Lease**") pursuant to which Landlord leased to Tenant and Tenant leased from Landlord certain "Premises", as described in the Lease, in that certain building located at _____, _____, California _____.

B. Except as otherwise set forth herein, all capitalized terms used in this Amendment shall have the same meaning as such terms have in the Lease.

C. Landlord and Tenant desire to amend the Lease to confirm the commencement and expiration dates of the term, as hereinafter provided.

NOW, THEREFORE, in consideration of the foregoing Recitals and the mutual covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Confirmation of Dates. The parties hereby confirm that (a) the Premises are Ready for Occupancy, and (b) the term of the Lease commenced as of _____ for a term of _____ ending on _____ (unless sooner terminated as provided in the Lease. Tenant shall commence to pay rent on _____, 20__ ("**Rent Commencement Date**").

2. No Further Modification. Except as set forth in this Amendment, all of the terms and provisions of the Lease shall remain unmodified and in full force and effect.

IN WITNESS WHEREOF, this Amendment has been executed as of the day and year first above written.

"**Landlord**":

AP3-SF3 CT NORTH, LLC,
a Delaware limited liability company

By: __
Name: __
Its: __

"**Tenant**":

,

a __

By: __
Name: __
Its: __

By: __
Name: __
Its: __

EXHIBIT D

RULES AND REGULATIONS

Tenant shall faithfully observe and comply with the following Rules and Regulations and the Parking Rules and Regulations. Landlord shall not be responsible to Tenant for the nonperformance of any of said Rules and Regulations and/or the Parking Rules and Regulations by or otherwise with respect to the acts or omissions of any other tenants or occupants of the Building and/or the Project.

1. Tenant shall not place any lock(s) on any door, or install any security system (including, without limitation, card key systems, alarms or security cameras), in the Premises without Landlord's prior written consent, which consent shall not be unreasonably withheld, and Landlord shall have the right to retain at all times and to use keys or other access codes or devices to all locks and/or security systems within and to the Premises. A reasonable number of keys to the locks on the entry doors of the Premises shall be furnished by Landlord to Tenant at Tenant's cost, and Tenant shall not make any duplicate keys. All keys shall be returned to Landlord at the expiration or earlier termination of the Lease. Further, if and to the extent Tenant re-keys, re-programs or otherwise changes any locks in or for the Premises, all such locks and key systems must be consistent with the master lock and key system at the Building, all at Tenant's sole cost and expense.

2. All doors opening to public corridors shall be kept closed at all times except for normal ingress and egress to the Premises, unless electrical hold backs have been installed. Sidewalks, doorways, passages, entrances, vestibules, halls, stairways and other Common Areas shall not be obstructed by Tenant or used by Tenant for any purpose other than ingress and egress to and from the Premises, and Tenant, its employees and agents shall not loiter in the entrances or corridors.

3. Landlord reserves the right to close and keep locked all entrance and exit doors of the Building during such hours as are customary for comparable buildings in the vicinity of the Building. Tenant and its employees and agents shall ensure that the doors to the Building are securely closed and locked when leaving the Premises if it is after the normal hours of business for the Building. Any tenant, its employees, agents or any other persons entering or leaving the Building at any time when it is so locked, or any time when it is considered to be after normal business hours for the Building, may be required to sign the Building register when so doing. After-hours access by Tenant’s authorized employees may be provided by hard-key, card-key access or other procedures adopted by Landlord from time to time; Tenant shall pay for the costs of all access cards provided to Tenant’s employees and all replacements thereof for lost, stolen and/or damaged cards. Access to the Building and/or the Project may be refused unless the person seeking access has proper identification or has a previously arranged pass for such access. Landlord and its agents shall in no case be liable for damages for any error with regard to the admission to or exclusion from the Building and/or the Project of any person. In case of invasion, mob, riot, public excitement, or other commotion, Landlord reserves the right to prevent access to the Building and/or the Project during the continuance of same by any means it deems appropriate for the safety and protection of life and property.

4. Landlord shall have the right to prescribe the weight, size and position of all safes and other heavy property brought into the Building. Safes and other heavy objects shall, if considered necessary by Landlord, stand on supports of such thickness as is necessary to properly distribute the weight. Landlord will not be responsible for loss of or damage to any such safe or property in any case. All damage done to any part of the Building, its contents, occupants and/or visitors by moving or maintaining any such safe or other property shall be the sole responsibility of Tenant and any expense of said damage or injury shall be borne by Tenant.

5. No furniture, freight, packages, supplies, equipment or merchandise will be brought into or removed from the Building or carried up or down in the elevators, except upon prior notice to Landlord, and in such manner, in such specific elevator, and between such hours as shall be designated by Landlord. Tenant shall provide Landlord with not less than 24 hours' prior notice of the need to utilize an elevator for any such purpose, so as to provide Landlord with a reasonable period to schedule such use and to install such padding or take such other actions or prescribe such procedures as are appropriate to protect against damage to the elevators or other parts of the Building. Tenant shall assume all risk for damage to articles moved and injury to any persons resulting from such activity described herein.

If equipment, property, or personnel of Landlord or of any other party is damaged or injured as a result of or in connection with such activity described herein, Tenant shall be solely liable for any resulting damage or loss.

6. Landlord shall have the right to control and operate the public portions of the Building and Project, the public facilities, the heating and air conditioning, and any other facilities furnished for the common use of tenants, in such manner as is customary for comparable buildings in the vicinity of the Building.

7. No signs, advertisements or notices shall be painted or affixed to windows, doors or other parts of the Building, except those of such color, size, style and in such places as are first approved in writing by Landlord. Landlord shall have the right to remove any signs, advertisements, and notices not approved in writing by Landlord without notice to and at the expense of Tenant. Landlord may provide and maintain in the first floor (main lobby) of the Building an alphabetical directory board or other directory device listing tenants, and no other directory shall be permitted unless previously consented to by Landlord in writing.

8. The requirements of Tenant will be attended to only upon application at the management office of the Project or at such office location designated by Landlord. Employees of Landlord shall not perform any work or do anything outside their regular duties unless under special instruction from Landlord.

9. Tenant shall not disturb (by use of any television, radio or musical instrument, making loud or disruptive noises, creating offensive odors or otherwise), solicit, or canvass any occupant of the Building and/or the Project and shall cooperate with Landlord or Landlord’s agents to prevent same.

10. The toilet rooms, urinals, wash bowls and other apparatus shall not be used for any purpose other than that for which they were constructed, and no foreign substance of any kind whatsoever shall be thrown therein. The expense of any breakage, stoppage or damage resulting from the violation of this rule shall be borne by the tenant who, or whose employees or invitees, shall have caused it.

11. Tenant shall not overload the floor of the Premises. Tenant shall not mark, drive nails or screws, or drill into the partitions, woodwork or plaster or in any way deface the Premises or any part thereof without Landlord’s consent first had and obtained; provided, however, Landlord’s prior consent shall not be required with respect to Tenant’s placement of pictures and other normal office wall hangings on the interior walls of the Premises (but at the end of the Lease Term, Tenant shall repair any holes and other damage to the Premises resulting therefrom).

12. Except for vending machines intended for the sole use of Tenant’s employees and invitees, no vending machine or machines of any description other than fractional horsepower office machines shall be installed, maintained or operated upon the Premises without the written consent of Landlord. Tenant shall not install, operate or maintain in the Premises or in any other area of the Building, electrical equipment that would overload the electrical system beyond its capacity for proper, efficient and safe operation as determined solely by Landlord.

13. Tenant shall not use any method of heating or air conditioning other than that which may be supplied by Landlord, without the prior written consent of Landlord. Tenant shall not furnish cooling or heating to the Premises, including, without limitation, the use of electronic or gas heating devices, portable coolers (such as "move n cools") or space heaters, without Landlord's prior written consent, and any such approval will be for devices that meet federal, state and local code.

14. No inflammable, explosive or dangerous fluids or substances shall be used or kept by Tenant in the Premises, Building and/or about the Project, except for those substances as are typically found in similar premises used for general office and/or laboratory purposes and are being used by Tenant in a safe manner and in accordance with all applicable Laws, rules and regulations. Tenant shall not, without Landlord's prior written consent, use, store, install, spill, remove, release or dispose of, within or about the Premises or any other portion of the Project, any asbestos-containing materials or any solid, liquid or gaseous material now or subsequently considered toxic or hazardous under the provisions of 42 U.S.C. Section 9601 et seq. or any other applicable environmental Laws which may now or later be in effect. Tenant shall comply with all Laws pertaining to and governing the use of these materials by Tenant, and shall remain solely liable for the costs of abatement and removal.

15. Tenant shall not use, keep or permit to be used or kept, any foul or noxious gas or substance in or on the Premises, or permit or allow the Premises to be occupied or used in a manner offensive or objectionable to Landlord or other occupants of the Building and/or the Project by reason of noise, odors, or vibrations, or interfere in any way with other tenants or those having business therewith.

16. Tenant shall not bring into or keep within the Project, the Building or the Premises any animals (except those assisting handicapped persons), birds, fish tanks, bicycles or other vehicles.

17. Tenant shall not use or occupy the Premises in any manner or for any purpose which might injure the reputation or impair the present or future value of the Premises, the Building and/or the Project. Tenant shall not use, or permit any part of the Premises to be used, for lodging, sleeping or for any illegal purpose.

18. No cooking shall be done or permitted by Tenant on the Premises, nor shall the Premises be used for the storage of merchandise or for any improper, objectionable or immoral purposes. Notwithstanding the foregoing, Underwriters' laboratory-approved equipment and microwave ovens may be used in the Premises for heating food and brewing coffee, tea, hot chocolate and similar beverages, provided that such use is in accordance with all applicable federal, state and city laws, codes, ordinances, rules and regulations, and does not cause odors which are objectionable to Landlord and other tenants. Whenever possible, Tenant shall utilize and purchase Energy Star products in their suites. Tenant understands the importance of energy conservation and sustainability to both the Landlord and the Project, and will assist in conserving energy in their suite with regards to practices and equipment.

19. Landlord will approve where and how telephone and telegraph wires and other cabling are to be introduced to the Premises. No boring or cutting for wires shall be allowed without the consent of Landlord. The location of telephone, call boxes and other office equipment and/or systems affixed to the Premises shall be subject to the approval of Landlord. Tenant shall not use more than its proportionate share of telephone lines and other telecommunication facilities available to service the Building.

20. Landlord reserves the right to exclude or expel from the Building and/or the Project any person who, in the judgment of Landlord, is intoxicated or under the influence of liquor or drugs, or who shall in any manner do any act in violation of any of these Rules and Regulations or cause harm to Building occupants and/or property.

21. All contractors, contractor's representatives and installation technicians performing work in the Building or at the Project shall be subject to Landlord's prior approval, which approval shall not be unreasonably withheld, and shall be required to comply with Landlord's standard rules, regulations, policies and procedures, which may be revised from time to time.

22. Tenant shall not employ any person other than the janitor of Landlord for the purpose of cleaning the Premises without prior written consent of Landlord, and without Landlord's consent, no person or persons shall be permitted to enter the Building for the purpose of cleaning the same. Tenant shall not cause any unnecessary labor by reason of Tenant's carelessness or indifference in the preservation of good order and cleanliness.

23. Tenant shall only employ persons from a list of exclusive vendors selected by Landlord for the removal of hazardous waste materials from the Building and the Project.

24. Tenant at all times shall maintain the entire Premises in a neat and clean, first class condition, free of debris. Tenant shall not place items, including, without limitation, any boxes, files, trash receptacles or loose cabling or wiring, in or near any window to the Premises which would be visible anywhere from the exterior of the Premises.

25. Tenant shall not waste electricity, water or air conditioning and agrees to cooperate fully with Landlord to ensure the most effective operation of the Building's heating and air conditioning system, including, without limitation, the use of window blinds to block solar heat load, and shall refrain from attempting to adjust any controls. Tenant shall comply with and participate in any program for metering or otherwise measuring the use of utilities and services, including, without limitation, programs requiring the disclosure or reporting of the use of any utilities or services. Tenant shall also cooperate and comply with, participate in, and assist in the implementation of (and take no action that is inconsistent with, or which would result in Landlord, the Building and/or the Project failing to comply with the requirements of) any conservation, sustainability, recycling, energy efficiency, and waste reduction programs,

environmental protection efforts and/or other programs that are in place and/or implemented from time to time at the Building and/or the Project, including, without limitation, any required reporting, disclosure, rating or compliance system or program (including, but not limited to, any LEED [Leadership in Energy and Environmental Design] rating or compliance system, including those currently coordinated through the U.S. Green Building Council).

26. Tenant shall store all its recyclables, trash and garbage within the interior of the Premises. No material shall be placed in the trash boxes or receptacles if such material is of such nature that it may not be disposed of in the ordinary and customary manner of removing and disposing of recyclables, trash and garbage in the city in which the Project is located without violation of any law or ordinance governing such disposal. All trash, garbage and refuse disposal shall be made only through entry-ways and elevators provided for such purposes at such times as Landlord shall designate.

27. Tenant shall comply with all safety, fire protection and evacuation procedures and regulations established by Landlord or any governmental agency.

28. Tenant shall assume any and all responsibility for protecting the Premises from theft, robbery and pilferage, which includes keeping doors locked and other means of entry to the Premises closed, when the Premises are not occupied, or when the entry to the Premises is not manned by Tenant on a regular basis.

29. No awnings or other projection shall be attached to the outside walls of the Building without the prior written consent of Landlord. No curtains, blinds, shades or screens shall be attached to or hung in, or used in connection with, any window or door of the Premises without the prior written consent of Landlord. The sashes, sash doors, skylights, windows, and doors that reflect or admit light and air into the halls, passageways or other public places in the Building shall not be covered or obstructed by Tenant, nor shall any bottles, parcels or other articles be placed on the windowsills. All electrical ceiling fixtures hung in offices or spaces along the perimeter of the Building must be fluorescent and/or of a quality, type, design and bulb color approved by Landlord.

30. The washing and/or detailing of or, the installation of windshields, radios, telephones in or general work on, automobiles shall not be allowed on the Project, except under specific arrangement with Landlord.

31. Food vendors shall be allowed in the Building upon receipt of a written request from Tenant delivered to Landlord. The food vendor shall service only the tenants that have a written request on file in the management office of the Project. Under no circumstance shall the food vendor display their products in a public or Common Area including corridors and elevator lobbies. Any failure to comply with this rule shall result in immediate permanent withdrawal of the vendor from the Building. Tenant shall obtain ice, drinking water, linen, barbering, shoe polishing, floor polishing, cleaning, janitorial, plant care or other similar services only from vendors who have registered in the management office of the Project and who have been approved by Landlord for provision of such services in the Premises.

32. Tenant must comply with requests by the Landlord concerning the informing of their employees of items of importance to the Landlord.

33. Tenant shall comply with any non-smoking ordinance adopted by any applicable governmental authority. Neither Tenant nor its agents, employees, contractors, guests or invitees shall smoke or permit smoking in the Premises and/or the Common Areas, unless the Common Areas have been declared a designated smoking area by Landlord, nor shall the above parties allow smoke from the Premises to emanate into the Common Areas or any other part of the Building. Landlord shall have the right to designate the Building (including the Premises) as a non-smoking building.

34. Tenant shall not take any action which would violate Landlord's labor contracts or which would cause a work stoppage, picketing, labor disruption or dispute, or interfere with Landlord's or any other tenant's or occupant's business or with the rights and privileges of any person lawfully in the Building ("**Labor Disruption**"). Tenant shall take the actions necessary to resolve the Labor Disruption, and shall have pickets removed and, at the request of Landlord, immediately terminate any work in the Premises that gave rise to the Labor Disruption, until Landlord gives its written consent for the work to resume, and Tenant shall have no claim for damages against Landlord or any of its trustees, members, principals, beneficiaries, partners, officers, directors, employees, mortgagees, or agents in connection therewith.

35. No tents, shacks, temporary or permanent structures of any kind shall be allowed on the Project. No personal belongings may be left unattended in any Common Areas.

36. Landlord shall have the right to prohibit the use of the name of the Building or Project or any other publicity by Tenant that in Landlord's sole opinion may impair the reputation of the Building or Project or the desirability thereof. Upon written notice from Landlord, Tenant shall refrain from and discontinue such publicity immediately.

37. Landlord shall have the right to designate and approve standard window coverings for the Premises and to establish rules to assure that the Building presents a uniform exterior appearance. Tenant shall ensure, to the extent reasonably practicable, that window coverings are closed on windows in the Premises while they are exposed to the direct rays of the sun.

38. The work of cleaning personnel shall not be hindered by Tenant after 5:30 P.M., and cleaning work may be done at any time when the offices are vacant. Windows, doors and fixtures may be cleaned at any time. Tenant shall provide adequate waste and rubbish receptacles to prevent unreasonable hardship to the cleaning service.

39. Tenant shall comply with all Building security procedures as Landlord may effectuate.

40. Tenant shall at all times cooperate with Landlord in preserving a first-class image for the Building.

PARKING RULES AND REGULATIONS

1. Landlord reserves the right to establish and reasonably change the hours for the Parking Facility, on a non-discriminatory basis, from time to time. Tenant shall not store or permit its employees to store any automobiles in the Parking Facility without the prior written consent of Landlord (and/or the Parking Operator, as the case may be). Except for emergency repairs, Tenant and its employees shall not perform any work on any automobiles while located in the Parking Facility or on the Project. The Parking Facility may not be used by Tenant or its agents for overnight parking of vehicles except while Tenant’s personnel are traveling. If it is necessary for Tenant or its employees to leave an automobile in the Parking Facility overnight, Tenant shall provide Landlord (or the Parking Operator as the case may be) with prior notice thereof designating the license plate number and model of such automobile.

2. Tenant (including Tenant's employees and agents) will use the parking spaces solely for the purpose of parking passenger model cars, small vans and small trucks and will comply in all respects with any rules and regulations that may be promulgated by Landlord and/or the Parking Operator from time to time with respect to the Parking Facility.

3. Vehicles must be parked entirely within the stall lines painted on the floor, and only small cars may be parked in areas reserved for small cars.

4. All directional signs and arrows must be observed.

5. The speed limit shall be 5 miles per hour.

6. Parking spaces reserved for handicapped persons must be used only by vehicles properly designated.

7. Parking is prohibited in all areas not expressly designated for parking, including without limitation:

(a) areas not striped for parking;
(b) aisles;
(c) where "no parking" signs are posted;
(d) ramps; and
(e) loading zones.

8. Parking stickers, key cards and any other devices or forms of identification or entry supplied by Landlord or the Parking Operator shall remain the property of Landlord (or the Parking Operator as the case may be). Such device must be displayed as requested and may not be mutilated in any manner. The serial number of the parking

identification device may not be obliterated. Parking passes and devices are not transferable and any pass or device in the possession of an unauthorized holder will be void.

9. Parking managers or attendants are not authorized to make or allow any exceptions to these Parking Rules and Regulations.

10. Every parker is required to park and lock his/her own car.

11. Loss or theft of parking passes, identification, key cards or other such devices must be reported to Landlord (and/or to the Parking Operator as the case may be) immediately. Any parking devices reported lost or stolen found on any authorized car will be confiscated and the illegal holder will be subject to prosecution. Lost or stolen passes and devices found by Tenant or its employees must be reported to Landlord (and to the Parking Operator, as the case may be) immediately.

12. Washing, waxing, cleaning or servicing of any vehicle by the customer and/or its agents is prohibited.

13. Tenant agrees to acquaint all persons to whom Tenant assigns a parking space with these Parking Rules and Regulations.

14. Neither Landlord nor the Parking Operator (as the case may be), from time to time will be liable for loss of or damage to any vehicle or any contents of such vehicle or accessories to any such vehicle, or any property left in any of the Parking Facility, resulting from fire, theft, vandalism, accident, conduct of other users of the Parking Facility and other persons, or any other casualty or cause. Further, Tenant understands and agrees that: (i) Landlord will not be obligated to provide any traffic control, security protection or Parking Operator for the Parking Facility; (ii) Tenant uses the Parking Facility at its own risk; and (iii) Landlord will not be liable for personal injury or death, or theft, loss of or damage to property. Tenant indemnifies and agrees to hold Landlord, any Parking Operator and their respective agents and employees harmless from and against any and all claims, demands, and actions arising out of the use of the Parking Facility by Tenant and its employees and agents, whether brought by any of such persons or any other person.

15. Tenant will ensure that any vehicle parked in any of the parking spaces will be kept in proper repair and will not leak excessive amounts of oil or grease or any amount of gasoline. If any of the parking spaces are at any time used (i) for any purpose other than parking as provided above, (ii) in any way or manner reasonably objectionable to Landlord, or (iii) by Tenant after default by Tenant under the Lease, Landlord, in addition to any other rights otherwise available to Landlord, may consider such default an event of default under the Lease.

16. Tenant's right to use the Parking Facility will be in common with other tenants of the Building and with other parties permitted by Landlord to use the Parking Facility. Landlord reserves the right to assign and reassign, from time to time, particular parking spaces for use by persons selected by Landlord, provided that Tenant's rights under the Lease are preserved. Landlord will not be liable to Tenant for any unavailability of Tenant's designated spaces, if any, nor will any unavailability entitle Tenant to any refund, deduction, or allowance. Tenant will not park in any numbered space or any space designated as: RESERVED, HANDICAPPED, VISITORS ONLY, or LIMITED TIME PARKING (or similar designation).

17. If the Parking Facility is damaged or destroyed, or if the use of the Parking Facility is limited or prohibited by any governmental authority, or the use or operation of the Parking Facility is limited or prevented by strikes or other labor difficulties or other causes beyond Landlord's reasonable control, Tenant's inability to use the parking spaces will not subject Landlord (and/or the Parking Operator, as the case may be) to any liability to Tenant and will not relieve Tenant of any of its obligations under the Lease and the Lease will remain in full force and effect. Tenant will pay to Landlord upon demand, and Tenant indemnifies Landlord against, any and all loss or damage to the Parking Facility, or any equipment, fixtures, or signs used in connection with the Parking Facility and any adjoining buildings or structures caused by Tenant or any of its employees and agents.

18. Tenant has no right to assign or sublicense any of its rights in the parking passes, except as part of a permitted assignment or sublease of the Lease; however, Tenant may allocate the parking passes among its employees.

Tenant shall be responsible for the observance of all of the Rules and Regulations and Parking Rules and Regulations in this **Exhibit D** by Tenant's employees, agents, clients, customers, invitees and guests. Landlord may waive any one or more of the Rules and Regulations and/or Parking Rules and Regulations for the benefit of any particular tenant or tenants, but no such waiver by Landlord shall be construed as a waiver of such Rules and Regulations and/or Parking Rules and Regulations in favor of any other tenant or tenants, nor prevent Landlord from thereafter enforcing any such Rules or Regulations and/or Parking Rules and Regulations against any or all tenants of the Building and/or the Project. Landlord reserves the right at any time to change or rescind any one or more of these Rules and Regulations and/or the Parking Rules and Regulations, or to make such other and further reasonable Rules and Regulations and/or Parking Rules and Regulations as in Landlord's judgment may from time to time be necessary for the management, safety, care and cleanliness of the Premises, Building and Project, and for the preservation of good order therein, as well as for the convenience of other occupants and tenants therein. Tenant shall be deemed to have read these Rules and Regulations and Parking Rules and Regulations and to have agreed to abide by them as a condition of its occupancy of the Premises.

COMMON AREA AMENITIES

1. Tenant understands that Landlord may provide certain common area amenities for Tenant's non-exclusive use. Such amenities are for the use of tenants during regular business hours and shall be reserved through the management office in advance. Tenant and Tenant's agents, employees and invitees shall adhere to all rules Landlord sets forth in respect to use of the amenities, which may change from time to time.

2. Tenant understands and agrees that: (i) Tenant uses the amenities at its own risk; and (ii) Landlord will not be liable for personal injury or death, or theft, loss of or damage to property. Tenant indemnifies and agrees to hold Landlord and its agents and employees harmless from and against any and all claims, demands, and actions arising out of the use of the amenities by Tenant and its agents, employees and invitees, whether brought by any of such persons or any other person.

3. All amenities offered shall remain at the locations designated by Landlord all times. Tenant must use the equipment only in the manner intended. Landlord reserves the right to limit Tenant's use of any equipment or amenities to ensure the equitable use of the equipment and amenities by all tenants. Tenant shall not move or modify the equipment in any manner whatsoever. If Tenant has reason to believe that any equipment is malfunctioning, Tenant shall notify Landlord immediately.

4. Tenant shall be responsible for the cost or repairs or replacements of any amenities that are not returned to management after use or are damaged during the use of any such amenity by Tenant or Tenant's agents, employees or invitees and Tenant shall reimburse Landlord for any such cost within thirty (30) days after receipt of an invoice therefor.

5. Tenant shall conduct themselves in a quiet and well-mannered fashion when on or about the amenities and not cause any disturbances or interfere with the use or enjoyment of the amenities by other tenants.

6. Tenant shall not bring any food or beverages into any amenity area.

7. No alcoholic beverages shall be permitted at the amenities at any time.

8. Neither Tenant nor its agents, employees or invitees shall smoke or permit smoking in the amenity areas at any time.

EXHIBIT E

FORM OF SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AGREEMENT

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL TO:

Cox, Castle & Nicholson LLP
2029 Century Park East, 21st Floor
Los Angeles, California 90067
Attention: Adam B. Weissburg, Esq.

APN: 007-650-190 and 007-650-170

SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AGREEMENT

Loan No. 18601

Massachusetts Mutual Life Insurance Company
c/o Barings
One Financial Plaza
Hartford, Connecticut 06103
Attention: Structured Real Estate Loan Servicing

Re: _____ *[Insert Property name and location]*

The undersigned, Fluidigm Corporation, a Delaware corporation ("**Tenant**"), understands that Massachusetts Mutual Life Insurance Company, a Massachusetts corporation ("**Lender**") has made or will be making a loan (the "**Loan**") to AP3-SF3 CT North LLC, a Delaware limited liability company ("**Landlord**"), secured by a mortgage or deed of trust (the "**Mortgage**") encumbering the real property (the "**Property**") described on Exhibit A, attached hereto and made a part hereof. Tenant and Landlord entered into an unrecorded lease agreement (the "**Lease**") dated _____ by which Tenant leased from Landlord certain premises commonly known as _____ (the "**Leased Premises**"), and constituting a portion of the Property. Tenant desires to be able to obtain the advantages of the Lease and occupancy thereunder in the event of foreclosure of the Mortgage and Lender wishes to have Tenant confirm the priority of the Mortgage over the Lease.

NOW, THEREFORE, in consideration of the mutual covenants and conditions set forth herein, the parties hereto agree as follows:

1. Subject to the terms of this agreement, Tenant hereby subordinates all of its right, title and interest under the Lease to the lien of the Mortgage and any other mortgages (as the same may be modified and/or extended from time to time) now or hereafter in force against the Property, and to any and all existing and future advances made under such Mortgage.

2. In the event that Lender becomes the owner of the Property by foreclosure, deed in lieu of foreclosure, or otherwise, the Lease shall continue as a direct lease between Lender, as landlord, and Tenant, as tenant, and Tenant agrees to unconditionally attorn to Lender and to recognize it as the owner of the Property and the Landlord under the Lease. The Lender agrees not to terminate the Lease or disturb or interfere with Tenant's possession of the Leased Premises during the term of the Lease, or any extension or renewal thereof, so long as Tenant is not in default under the Lease beyond applicable notice, grace and cure periods, if any.

3. Other than pursuant to express termination rights in the Lease, Tenant will not terminate or seek to terminate the Lease by reason of any act or omission of the Landlord thereunder until Tenant shall have given written notice, by certified mail, return receipt requested, or overnight delivery by a nationally recognized carrier, of said act or omission to Lender, which notice shall be addressed to Massachusetts Mutual Life Insurance Company, c/o Barings, One Financial Plaza, Hartford, Connecticut 06103, Attention: Structured Real Estate Loan Servicing, with a copy sent to Barings, One Financial Plaza, Hartford, Connecticut 06103, Attention: Legal Department, and the cure period provided to Landlord, if any, shall have elapsed following the giving of such notice, during which period Lender shall have the right, but not the obligation, to remedy such act or omission. Lender will have 10 days after its receipt of such notice to cure any Landlord monetary default and will have 30 days after its receipt of such notice to cure any Landlord non-monetary default. If such non-monetary cure is not possible within 30 days, Lender will be afforded additional time not to exceed an additional 60 days to cure such non-monetary default, so long as Lender commences such cure within such initial 30 day period and continues to diligently to pursue the same to completion.

4. Lender and any other subsequent owner of the Property, whether through foreclosure, deed in lieu of foreclosure, or any other means, or any other transfer or means after a foreclosure or a deed in lieu of foreclosure (a "Subsequent Owner") shall not be:

(a) Liable for any act or omission of any prior landlord, including Landlord, except for any ongoing, non-monetary maintenance, repair or replacement obligation set forth in the Lease;

(b) Subject to any offsets or defenses which Tenant might have against any prior landlord, including Landlord, except for offsets or defenses related to a continuing default, so long as Tenant (i) notifies Subsequent Owner in writing of such continuing default on or after the date Subsequent Owner succeeds to the interest of Landlord under the Lease and (ii) provides Subsequent Owner with the same opportunity to cure such continuing default as provided to Landlord under the Lease (it being understood that Landlord shall remain liable for such damages until Subsequent Owner is liable for the same hereunder);

(c) Bound by any prepayment of rent made more than one month in advance or deposit, rental security or any other sums deposited with any prior lessor, including Landlord, under the Lease, unless actually received by Lender or Subsequent Owner;

(d) Bound by any amendment or modification of the Lease made without Lender's or Subsequent Owner's prior written consent, except for amendments or modifications specifically contemplated by the Lease; and

(e) Bound to commence or complete any construction or to make any contribution toward construction or installation of any improvements upon the Leased Premises or the Property required under the Lease, including, without limitation, for any expansion or rehabilitation of existing improvements thereon; or for the payment of any tenant allowance or incentive, or for restoration of improvements following any casualty not required to be insured under the Lease or for the costs of any restorations in excess of any proceeds recovered under any insurance required to be carried under the Lease.

5. Tenant agrees to commence paying all rents, revenues and other payments due under the Lease directly to Lender after Lender notifies Tenant that Lender is the owner and holder of the Loan and is invoking Lender's rights under the Loan documents to directly receive from Tenant all rents, revenues and other payments due under the Lease. By making such payments to Lender, Tenant shall be deemed to have satisfied all such payment obligations to Landlord under the Lease.

6. This Agreement shall inure to the benefit of Lender's affiliates, agents, lenders, co-lenders and participants, and each of their respective successors and assigns.

[Remainder of page intentionally left blank; signature pages follow]

IN WITNESS WHEREOF, the parties hereto have caused this Subordination, Non-Disturbance and Attornment Agreement to be duly executed as of the _____ day of _____, 2019.

TENANT:

FLUIDIGM CORPORATION,
a Delaware corporation

By: _____
Name: _____
Its: _____

[Signatures continue on following page]

LANDLORD:

AP3-SF3 CT NORTH LLC,
a Delaware limited liability company

By: _____
Name: W. Neil Fox, III
Its: Chief Executive Officer

[Signatures continue on following page]

LENDER:

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY,
a Massachusetts corporation

By: Barings Real Estate Advisers Inc.,
a Delaware corporation,
its Authorized Agent

By: _____
Name: _____
Its: _____

[End of signatures]

TENANT'S ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF _____)
) ss:
COUNTY OF _____)

On _____, 2019, before me, _____
(insert name and title of the officer),

personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of _____ that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

[Seal]

LANDLORD'S ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF _____)
) ss:
COUNTY OF _____)

On _____, 2019, before me, _____
(insert name and title of the officer),

personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of _____ that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

[Seal]

LENDER'S ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF _____)
) ss:
COUNTY OF _____)

On _____, 2019, before me, _____
(insert name and title of the officer),

personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of _____ that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

[Seal]

EXHIBIT A

LEGAL DESCRIPTION

Real property in the City of South San Francisco, County of San Mateo, State of California, described as follows:

PARCEL A:

PARCEL 2 AS SHOWN ON THAT CERTAIN MAP ENTITLED, "PARCEL MAP 08-0001, BEING A RESUBDIVISION OF PARCEL 1 AS SAID PARCEL IS SHOWN ON THAT CERTAIN MAP ENTITLED 'PARCEL MAP 01-020' FILED FOR RECORD ON MAY 19, 2006 IN BOOK 76 OF PARCEL MAPS AT PAGES 94 AND 95", WHICH MAP WAS FILED FOR RECORD IN THE OFFICE OF THE RECORDER OF THE CITY OF SOUTH SAN FRANCISCO, COUNTY OF SAN MATEO, STATE OF CALIFORNIA ON SEPTEMBER 18, 2008 IN BOOK 78 OF PARCEL MAPS, AT PAGES 67-68, INCLUSIVE.

PARCEL B:

PARCEL 2, AS SHOWN ON THE MAP ENTITLED, "PARCEL MAP 01-020, BEING A RESUBDIVISION OF A PORTION OF LOT D AS SAID LOT IS SHOWN ON THAT CERTAIN MAP ENTITLED 'TERRABAY PHASE III - MANDALAY POINTE' FILED FOR RECORD ON NOVEMBER 18, 2002 IN BOOK 132 OF MAPS AT PAGES 49 THROUGH 53, A PORTION OF LOT 395 AS SAID LOT SHOWN ON THAT CERTAIN MAP ENTITLED "TERRABAY" FILED FOR RECORD ON JULY 2, 1990 AND ALL OF ADJUSTED LOT 396 AS DESCRIBED IN THAT CERTAIN LOT LINE ADJUSTMENT NO. 25, RECORDED MARCH 3, 2002 AS DOCUMENT NO. 2002-043342, SAN MATEO COUNTY RECORDS, CITY OF SOUTH SAN FRANCISCO, SAN MATEO COUNTY, CALIFORNIA WHICH PARCEL MAP WAS FILED FOR RECORD ON THE 19TH DAY OF MAY, 2006 IN BOOK 76 OF PARCEL MAPS, AT PAGES 94-95, AND WHICH PARCEL MAP WAS AMENDED BY THOSE CERTAIN CERTIFICATE OF CORRECTIONS RECORDED (A) OCTOBER 23, 2006 AS DOCUMENT NUMBER 2006-159188 OF OFFICIAL RECORDS, SAN MATEO COUNTY RECORDS, STATE OF CALIFORNIA, AND (B) RECORDED JUNE 19, 2015 AS DOCUMENT NUMBER 2015-064090 OF OFFICIAL RECORDS, SAN MATEO COUNTY RECORDS, STATE OF CALIFORNIA.

PARCEL C:

NON-EXCLUSIVE EASEMENTS AS DESCRIBED AND GRANTED TO MYERS PENINSULA VENTURE, LLC, IN THAT CERTAIN AGREEMENT GRANTING EASEMENT RECORDED MARCH 1, 2007 AS INSTRUMENT NO. 2007-031676 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN MATEO COUNTY, CALIFORNIA.

PARCEL D:

A NON-EXCLUSIVE EASEMENTS AS DESCRIBED AND AS GRANTED TO MYERS PENINSULA VENTURE, LLC IN THAT CERTAIN DECLARATION OF EASEMENTS RECORDED SEPTEMBER 18, 2008, AS INSTRUMENT NO. 105133 OF OFFICIAL RECORDS; AND THAT CERTAIN FIRST AMENDMENT TO DECLARATION OF EASEMENTS RECORDED NOVEMBER 18, 2015 AS INSTRUMENT NO. 2015-121411, ALL IN THE OFFICE OF THE COUNTY RECORDER OF SAN MATEO COUNTY, CALIFORNIA.

PARCEL E:

NON-EXCLUSIVE EASEMENTS AS SET FORTH IN THAT CERTAIN DECLARATION OF RECIPROCAL EASEMENTS, COVENANTS AND RESTRICTIONS OF CENTENNIAL TOWERS DATED MAY 5, 2008 AND RECORDED ON SEPTEMBER 18, 2008 AS INSTRUMENT NO. 2008-105136; AND THAT CERTAIN FIRST AMENDMENT TO DECLARATION OF RECIPROCAL EASEMENTS, COVENANTS AND RESTRICTIONS OF CENTENNIAL TOWERS RECORDED NOVEMBER 18, 2015 AS INSTRUMENT NO. 2015-121410; AND THAT CERTAIN SECOND AMENDMENT TO DECLARATION OF RECIPROCAL

EASEMENTS, COVENANTS AND RESTRICTIONS OF CENTENNIAL TOWERS RECORDED NOVEMBER 18, 2015 AS INSTRUMENT NO. 2015-121417, ALL OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN MATEO COUNTY, CALIFORNIA.

PARCEL F:

A NON-EXCLUSIVE EASEMENT AS SET FORTH IN THAT CERTAIN AGREEMENT GRANTING EASEMENT DATED JANUARY 22, 2009 AND RECORDED ON FEBRUARY 3, 2009 AS INSTRUMENT NO. 2009-010537 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN MATEO COUNTY, CALIFORNIA.

PARCEL G:

NON-EXCLUSIVE EASEMENTS AS SET FORTH IN THAT CERTAIN DECLARATION OF COVENANTS CONDITIONS AND RESTRICTIONS OF CENTENNIAL TOWERS DATED MARCH 27, 2009 AND RECORDED ON APRIL 3, 2009 AS INSTRUMENT NO. 2009-038658; AS AMENDED BY THAT CERTAIN FIRST AMENDMENT TO DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS OF CENTENNIAL TOWERS DATED APRIL 20, 2010 AND RECORDED MAY 12, 2010 AS INSTRUMENT NO. 2010-051876; AND AMENDED BY THAT CERTAIN SECOND AMENDMENT TO DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS OF CENTENNIAL TOWERS DATED NOVEMBER 17, 2015 AND RECORDED NOVEMBER 18, 2015 AS INSTRUMENT NO. 2015-121409 ALL OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN MATEO COUNTY, CALIFORNIA.

APN: 007-650-190 (Parcel A) and 007-650-170 (Parcel B)

EXHIBIT F

GENERAL STORAGE AREA

EXHIBIT G

HAZARDOUS MATERIALS STORAGE AREAS

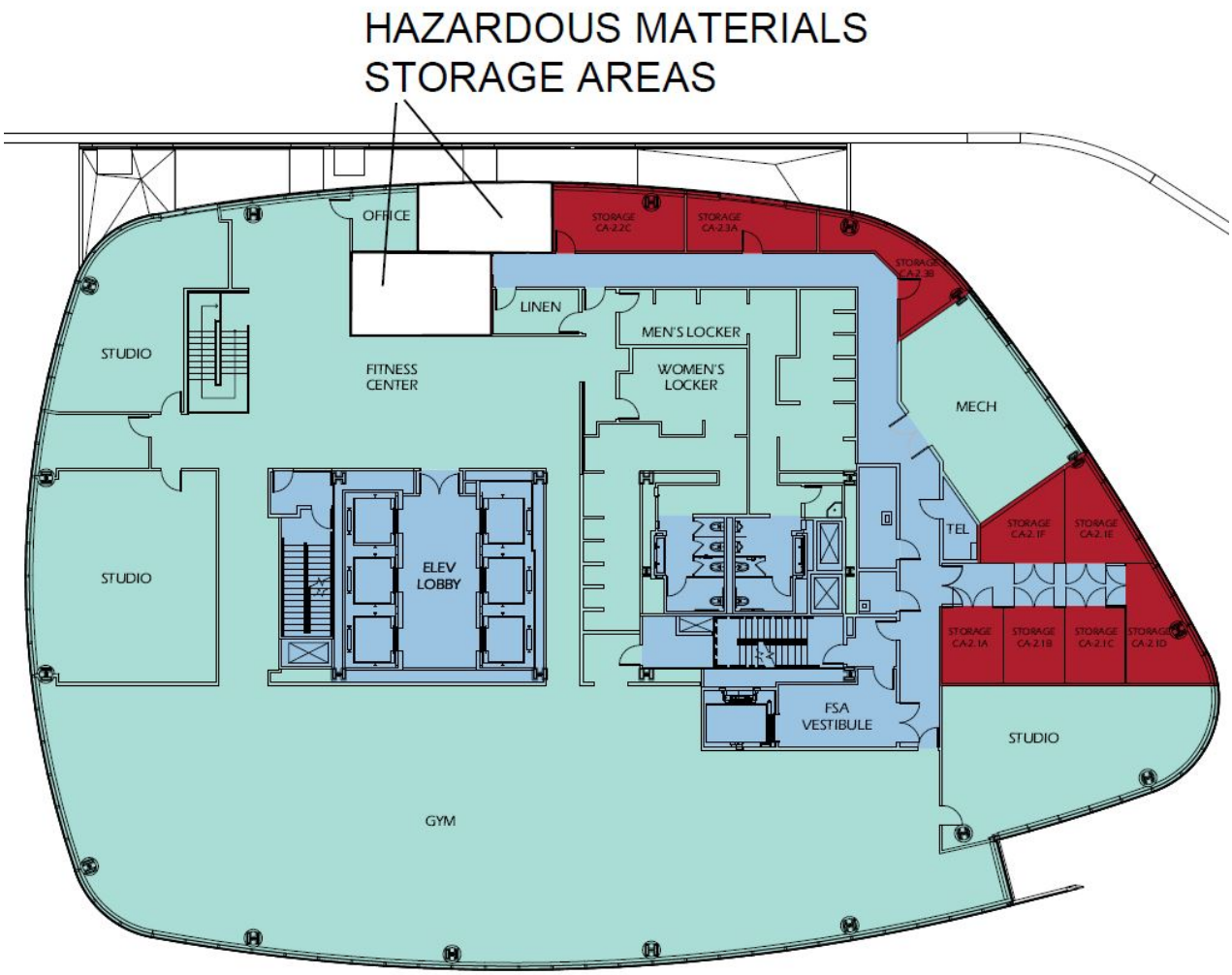


EXHIBIT H

FORM OF LETTER OF CREDIT

(Letterhead of a money center bank acceptable to the Landlord)

[please substitute approved form]

IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER _____

ISSUE DATE: _____

ISSUING BANK:
SILICON VALLEY BANK
3003 TASMAN DRIVE
2ND FLOOR, MAIL SORT HF210
SANTA CLARA, CALIFORNIA 95054

BENEFICIARY:
AP3-SF3 CT NORTH, LLC
4380 LA JOLLA VILLAGE DRIVE, SUITE 230
SAN DIEGO, CA 92122
ATTENTION: W. NEIL FOX, CEO

APPLICANT:
FLUIDIGM CORPORATION
7000 SHORELINE COURT SUITE 100
SOUTH SAN FRANCISCO CA 94080

AMOUNT: US$2,000,000.00 (TWO MILLION DOLLARS AND 00/100 U.S. DOLLARS)

EXPIRATION DATE: _____ [SVB WILL INSERT A DATE THAT IS ONE YEAR FROM ISSUE]

PLACE OF EXPIRATION: ISSUING BANK'S COUNTERS AT ITS ABOVE ADDRESS

DEAR SIR/MADAM:

WE HEREBY ESTABLISH OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. SVBSF_____ IN YOUR FAVOR AVAILABLE BY PAYMENT AGAINST YOUR PRESENTATION TO US OF THE FOLLOWING DOCUMENT:

1.BENEFICIARY'S SIGNED AND DATED STATEMENT STATING AS FOLLOWS:

"AN EVENT OF DEFAULT (AS DEFINED IN THE LEASE) HAS OCCURRED UNDER THAT CERTAIN LEASE AGREEMENT BETWEEN _____, AS TENANT, AND _____ AS LANDLORD, AS AMENDED, SUPPLEMENTED OR OTHERWISE MODIFIED TO DATE. THE UNDERSIGNED HEREBY CERTIFIES THAT: (I) THE UNDERSIGNED IS AN AUTHORIZED REPRESENTATIVE OF LANDLORD; (II) LANDLORD IS THE BENEFICIARY OF LETTER OF CREDIT NO. SVBSF _____ ISSUED BY SILICON VALLEY BANK; (III) LANDLORD HAS GIVEN WRITTEN NOTICE TO TENANT TO CURE THE DEFAULT PURSUANT TO THE TERMS OF THE LEASE; (IV) SUCH DEFAULT HAS NOT BEEN CURED UP TO THIS DATE OF DRAWING UNDER THE LETTER OF CREDIT; (V) LANDLORD IS AUTHORIZED TO DRAW DOWN UNDER THE LETTER OF CREDIT IN THE REQUESTED AMOUNT; AND

(VI) LANDLORD WILL HOLD THE FUNDS DRAWN UNDER THE LETTER OF CREDIT AS SECURITY DEPOSIT FOR TENANT OR APPLY SAID FUNDS TO TENANT'S OBLIGATION UNDER THE LEASE. THE AMOUNT HEREBY DRAWN UNDER THE LETTER OF CREDIT IS US$_____, WITH PAYMENT TO BE MADE TO THE FOLLOWING ACCOUNT: [INSERT WIRE INSTRUCTIONS (TO INCLUDE NAME AND ACCOUNT NUMBER OF THE BENEFICIARY)"

OR

"THE UNDERSIGNED HEREBY CERTIFIES THAT WE HAVE RECEIVED A WRITTEN NOTICE OF [Insert Bank Name]'S ELECTION NOT TO EXTEND ITS STANDBY LETTER OF CREDIT NO. _____ AND HAVE NOT RECEIVED A REPLACEMENT LETTER OF CREDIT WITHIN AT LEAST THIRTY (30) DAYS PRIOR TO THE PRESENT EXPIRATION DATE."

OR

"THE UNDERSIGNED HEREBY CERTIFIES THAT BENEFICIARY IS ENTITLED TO DRAW DOWN THE FULL AMOUNT OF LETTER OF CREDIT NO. _____ AS THE RESULT OF THE FILING OF A VOLUNTARY PETITION UNDER THE U.S. BANKRUPTCY CODE OR A STATE BANKRUPTCY CODE BY THE TENANT UNDER THAT CERTAIN OFFICE LEASE DATED [Insert Lease Date], AS THE SAME MAY HAVE BEEN AMENDED (COLLECTIVELY, THE "LEASE"), WHICH FILING HAS NOT BEEN DISMISSED AT THE TIME OF THIS DRAWING."

OR

"THE UNDERSIGNED HEREBY CERTIFIES THAT BENEFICIARY IS ENTITLED TO DRAW DOWN THE FULL AMOUNT OF LETTER OF CREDIT NO. _____ AS THE RESULT OF AN INVOLUNTARY PETITION HAVING BEEN FILED UNDER THE U.S. BANKRUPTCY CODE OR A STATE BANKRUPTCY CODE AGAINST THE TENANT UNDER THAT CERTAIN OFFICE LEASE DATED [Insert Lease Date], AS THE SAME MAY HAVE BEEN AMENDED (COLLECTIVELY, THE "LEASE"), WHICH FILING HAS NOT BEEN DISMISSED AT THE TIME OF THIS DRAWING."

OR

"THE UNDERSIGNED HEREBY CERTIFIES THAT BENEFICIARY IS ENTITLED TO DRAW DOWN THE FULL AMOUNT OF LETTER OF CREDIT NO. _____ AS THE RESULT OF THE REJECTION, OR DEEMED REJECTION, OF THAT CERTAIN OFFICE LEASE DATED [Insert Lease Date], AS THE SAME MAY HAVE BEEN AMENDED, UNDER SECTION 365 OF THE U.S. BANKRUPTCY CODE."

PARTIAL DRAWS AND MULTIPLE PRESENTATIONS ARE ALLOWED.

THIS LETTER OF CREDIT SHALL BE AUTOMATICALLY EXTENDED FOR AN ADDITIONAL PERIOD OF ONE YEAR, WITHOUT AMENDMENT, FROM THE PRESENT OR EACH FUTURE EXPIRATION DATE UNLESS AT LEAST 60 DAYS PRIOR TO THE THEN CURRENT EXPIRATION DATE WE SEND TO YOU A NOTICE BY REGISTERED OR CERTIFIED MAIL OR OVERNIGHT COURIER SERVICE AT THE ABOVE ADDRESS THAT THIS LETTER OF CREDIT WILL NOT BE EXTENDED BEYOND THE THEN CURRENT EXPIRATION DATE. IN NO EVENT SHALL THIS LETTER OF CREDIT BE AUTOMATICALLY EXTENDED BEYOND JUNE 30, 2030. IN THE EVENT WE SEND SUCH NOTICE OF NON-EXTENSION, YOU MAY DRAW HEREUNDER BY YOUR PRESENTATION TO US OF YOUR SIGNED AND DATED STATEMENT STATING THAT YOU HAVE RECEIVED A NON-EXTENSION NOTICE FROM SILICON VALLEY BANK IN RESPECT OF LETTER OF CREDIT NO. SVBSF _____, YOU ARE DRAWING ON SUCH LETTER OF CREDIT FOR US$_____, AND YOU HAVE NOT RECEIVED A REPLACEMENT LETTER OF CREDIT

ACCEPTABLE TO YOU AND IT IS LESS THAN 30 DAYS PRIOR TO THE EXPIRATION DATE OF THIS LETTER OF CREDIT.

ALL DEMANDS FOR PAYMENT SHALL BE MADE BY PRESENTATION OF THE REQUIRED DOCUMENTS ON A BUSINESS DAY AT OUR OFFICE (THE "BANK'S OFFICE") AT: SILICON VALLEY BANK, 3003 TASMAN DRIVE, MAIL SORT HF 210, SANTA CLARA, CA 95054, ATTENTION: GLOBAL TRADE FINANCE. AS USED IN THIS LETTER OF CREDIT, "BUSINESS DAY" SHALL MEAN ANY DAY OTHER THAN A SATURDAY, SUNDAY OR A DAY ON WHICH BANKING INSTITUTIONS IN THE STATE OF CALIFORNIA ARE AUTHORIZED OR REQUIRED BY LAW TO CLOSE.

FACSIMILE PRESENTATIONS ARE ALSO PERMITTED. SHOULD BENEFICIARY WISH TO MAKE A PRESENTATION UNDER THIS LETTER OF CREDIT ENTIRELY BY FACSIMILE TRANSMISSION IT NEED NOT TRANSMIT THE ORIGINAL OF THIS LETTER OF CREDIT AND AMENDMENTS, IF ANY. EACH FACSIMILE TRANSMISSION SHALL BE MADE AT: (408) 496-2418 OR (408) 969-6510; AND UNDER CONTEMPORANEOUS TELEPHONE ADVICE TO: (408) --- ---- OR (408) --- ----, ATTENTION: GLOBAL TRADE FINANCE. ABSENCE OF THE AFORESAID TELEPHONE ADVICE SHALL NOT AFFECT OUR OBLIGATION TO HONOR ANY DRAW REQUEST.

THIS LETTER OF CREDIT IS TRANSFERABLE IN WHOLE BUT NOT IN PART ONE OR MORE TIMES, BUT IN EACH INSTANCE ONLY TO A SINGLE BENEFICIARY AS TRANSFEREE AND FOR THE THEN AVAILABLE AMOUNT, ASSUMING SUCH TRANSFER TO SUCH TRANSFEREE WOULD BE IN COMPLIANCE WITH THEN APPLICABLE LAW AND REGULATION, INCLUDING BUT NOT LIMITED TO THE REGULATIONS OF THE U.S. DEPARTMENT OF TREASURY AND U.S. DEPARTMENT OF COMMERCE. AT THE TIME OF TRANSFER, THE ORIGINAL LETTER OF CREDIT AND ORIGINALS OR COPIES OF ALL AMENDMENTS, IF ANY, TO THIS LETTER OF CREDIT MUST BE SURRENDERED TO US AT OUR ADDRESS INDICATED IN THIS LETTER OF CREDIT TOGETHER WITH OUR TRANSFER FORM ATTACHED HERETO AS EXHIBIT A DULY EXECUTED. BENEFICIARY SHALL PAY OUR TRANSFER FEE OF ¼ OF 1% OF THE TRANSFER AMOUNT (MINIMUM US$250.00AND MAXIMUM US$2,500)) UNDER THIS LETTER OF CREDIT. EACH TRANSFER SHALL BE EVIDENCED BY EITHER (1) OUR ENDORSEMENT ON THE REVERSE OF THE LETTER OF CREDIT AND WE SHALL FORWARD THE ORIGINAL OF THE LETTER OF CREDIT SO ENDORSED TO THE TRANSFEREE OR (2) OUR ISSUING A REPLACEMENT LETTER OF CREDIT TO THE TRANSFEREE ON SUBSTANTIALLY THE SAME TERMS AND CONDITIONS AS THE TRANSFERRED LETTER OF CREDIT (IN WHICH EVENT THE TRANSFERRED LETTER OF CREDIT SHALL HAVE NO FURTHER EFFECT).

IF ANY INSTRUCTIONS ACCOMPANYING A DRAWING UNDER THIS LETTER OF CREDIT REQUEST THAT PAYMENT IS TO BE MADE BY TRANSFER TO YOUR ACCOUNT WITH ANOTHER BANK, WE WILL ONLY EFFECT SUCH PAYMENT BY FED WIRE TO A U.S. REGULATED BANK, AND WE AND/OR SUCH OTHER BANK MAY RELY ON AN ACCOUNT NUMBER SPECIFIED IN SUCH INSTRUCTIONS EVEN IF THE NUMBER IDENTIFIES A PERSON OR ENTITY DIFFERENT FROM THE INTENDED PAYEE.

THIS LETTER OF CREDIT IS SUBJECT TO THE INTERNATIONAL STANDBY PRACTICES (ISP98), INTERNATIONAL CHAMBER OF COMMERCE, PUBLICATION NO. 590.

_____ _____

AUTHORIZED SIGNATURE AUTHORIZED SIGNATURE

IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER _____

EXHIBIT A

FORM OF TRANSFER FORM

DATE: _____

TO: SILICON VALLEY BANK
3003 TASMAN DRIVE RE: IRREVOCABLE STANDBY LETTER OF CREDIT
SANTA CLARA, CA 95054 NO. _____ ISSUED BY
ATTN: GLOBAL TRADE FINANCE SILICON VALLEY BANK, SANTA CLARA
STANDBY LETTERS OF CREDIT L/C AMOUNT: _____

GENTLEMEN:

FOR VALUE RECEIVED, THE UNDERSIGNED BENEFICIARY HEREBY IRREVOCABLY TRANSFERS TO:

_____
(NAME OF TRANSFEREE)

_____
(ADDRESS)

ALL RIGHTS OF THE UNDERSIGNED BENEFICIARY TO DRAW UNDER THE ABOVE LETTER OF CREDIT UP TO ITS AVAILABLE AMOUNT AS SHOWN ABOVE AS OF THE DATE OF THIS TRANSFER.

BY THIS TRANSFER, ALL RIGHTS OF THE UNDERSIGNED BENEFICIARY IN SUCH LETTER OF CREDIT ARE TRANSFERRED TO THE TRANSFEREE. TRANSFEREE SHALL HAVE THE SOLE RIGHTS AS BENEFICIARY THEREOF, INCLUDING SOLE RIGHTS RELATING TO ANY AMENDMENTS, WHETHER INCREASES OR EXTENSIONS OR OTHER AMENDMENTS, AND WHETHER NOW EXISTING OR HEREAFTER MADE. ALL AMENDMENTS ARE TO BE ADVISED DIRECTLY TO THE TRANSFEREE WITHOUT NECESSITY OF ANY CONSENT OF OR NOTICE TO THE UNDERSIGNED BENEFICIARY.

THE ORIGINAL OF SUCH LETTER OF CREDIT IS RETURNED HEREWITH, AND WE ASK YOU TO EITHER (1) ENDORSE THE TRANSFER ON THE REVERSE THEREOF, AND FORWARD IT DIRECTLY TO THE TRANSFEREE WITH YOUR CUSTOMARY NOTICE OF TRANSFER, OR (2) ISSUE A REPLACEMENT LETTER OF CREDIT TO THE TRANSFEREE ON SUBSTANTIALLY THE SAME TERMS AND CONDITIONS AS THE TRANSFERRED LETTER OF CREDIT (IN WHICH EVENT THE TRANSFERRED LETTER OF CREDIT SHALL HAVE NO FURTHER EFFECT).

SINCERELY, SIGNATURE AUTHENTICATED

_____
(BENEFICIARY'S NAME)

_____
(SIGNATURE OF BENEFICIARY)

_____
(NAME AND TITLE)

The name(s), title(s), and signature(s) conform to that/those on file with us for the company and the signature(s) is/are authorized to execute this instrument.

_____
(Name of Bank)

_____
(Address of Bank)

_____
(City, State, ZIP Code)

_____
(Authorized Name and Title)

_____
(Authorized Signature)

_____
(Telephone number)

RIDER 1

EXTENSION OPTION RIDER

This Extension Option Rider ("**Extension Rider**") is attached to and made a part of the Lease by and between Landlord and Tenant. The agreements set forth in this Extension Rider shall have the same force and effect as if set forth in the Lease. To the extent the terms of this Extension Rider are inconsistent with the terms of the Lease, the terms of this Extension Rider shall control.

1. Extension Option. Landlord hereby grants Tenant one (1) option (the "**Extension Option**") to extend the Lease Term for a period of five (5) years (the "**Option Term**"), which option shall be exercisable only by written Exercise Notice (as defined below) delivered by Tenant to Landlord as provided below. Upon the proper exercise of the Extension Option, the Lease Term shall be extended for the Option Term. Notwithstanding the foregoing, at Landlord's option, in addition to any other remedies available to Landlord under the Lease, at law or in equity, the Extension Option shall not be deemed properly exercised if as of the date of delivery of the Exercise Notice (as defined below) by Tenant, Tenant has previously been in default under the Lease beyond all applicable notice and cure periods in the preceding twelve (12) month period (as those terms are defined below). The Extension Option is personal to the Original Tenant and any Affiliate Assignee and may only be exercised by the Original Tenant or any Affiliate Assignee (and not any other assignee, sublessee or other transferee of Tenant's interest in the Lease).

2. Option Rent. The annual Base Rent payable by Tenant during the Option Term (the "**Option Rent**") shall be equal to the greater of: (i) the annual Base Rent payable by Tenant during the last year of the initial Lease Term; or (ii) the Fair Market Rental Rate for comparable office/laboratory space in the South San Francisco market. As used herein, the "**Fair Market Rental Rate**" shall mean the annual base rent at which tenants, as of the commencement of the Option Term, will be leasing non-sublease space comparable in size, location (including views) and quality to the Premises for a comparable term as the Option Term, which comparable space is located in the Building, the Other Existing Building in the Project and in other comparable first-class biotechnology buildings in South San Francisco area ("**Market Area**"), taking into consideration all free rent and other out-of-pocket concessions generally being granted at such time for such comparable space for the Option Term (including, without limitation, any tenant improvement allowance provided for such comparable space and that Tenant will not be receiving such concessions). All other terms and conditions of the Lease shall apply throughout the Option Term; however, Tenant shall, in no event, have the option to extend the Lease Term beyond the Option Term described in Section 1 above.

3. Exercise of Option. The Extension Option shall be exercised by Tenant, if at all, only in the following manner: (i) Tenant shall deliver written notice ("**Interest Notice**") to Landlord not more than fifteen (15) months nor less than fourteen (14) months prior to the expiration of the initial Lease Term stating that Tenant may be interested in exercising the Extension Option; (ii) Landlord, after receipt of Tenant's notice, shall deliver notice (the "**Option Rent Notice**") to Tenant not less than thirteen (13) months prior to the expiration of the initial Lease Term setting forth the Option Rent; and (iii) if Tenant wishes to exercise the Extension Option, Tenant shall, on or before the date (the "**Exercise Date**") which is twelve (12) months prior to the expiration of the initial Lease Term, exercise the Extension Option by delivering written notice ("**Exercise Notice**") thereof to Landlord. Tenant's failure to deliver the Interest Notice or Exercise Notice on or before the applicable delivery dates therefore specified hereinabove shall be deemed to constitute Tenant's waiver of the Extension Option and such Extension Option shall be null and void and of no further force or effect.

4. Determination of Option Rent. If Tenant timely and appropriately objects in its Exercise Notice to Landlord to the Fair Market Rental Rate for the Option Term initially determined by Landlord, then Landlord and Tenant shall attempt in good faith to agree upon the Fair Market Rental Rate. If Landlord and Tenant fail to reach agreement within thirty (30) days following Tenant's delivery of such Exercise Notice (the "**Outside Agreement Date**"), then each party shall submit to the other party a separate written determination of the Fair Market Rental Rate within fifteen (15) business days after the Outside Agreement Date, and such determinations shall be submitted to arbitration in accordance with the provisions of Sections 4.1 through 4.6 below; provided, however, Landlord shall not submit an amount in excess of that set forth in the Option Rent Notice. The failure of Tenant or Landlord to submit a written determination of the Fair Market Rental Rate within such fifteen (15) business day period shall conclusively be deemed

to be such party's approval of the Fair Market Rental Rate submitted within such fifteen (15) business day period by the other party.

4.1 Landlord and Tenant shall each appoint one (1) arbitrator who shall by profession be an independent real estate broker who shall have no ongoing relationship with Tenant or Landlord and who shall have been active over the five (5) year period ending on the date of such appointment in the leasing of first biotechnology office buildings in the Market Area. The determination of the arbitrators shall be limited solely to the issue of whether Landlord's or Tenant's submitted Fair Market Rental Rate is the closer to the actual Fair Market Rental Rate as determined by the arbitrators, taking into account the requirements with respect thereto set forth in Section 2 above. Each such arbitrator shall be appointed within fifteen (15) days after the Outside Agreement Date.

4.2 The two (2) arbitrators so appointed shall, within fifteen (15) days of the date of the appointment of the last appointed arbitrator, agree upon and appoint a third arbitrator who shall be qualified under the same criteria set forth hereinabove for qualification of the initial two (2) arbitrators.

4.3 The three (3) arbitrators shall, within thirty (30) days of the appointment of the third arbitrator, reach a decision as to which of Landlord's or Tenant's submitted Fair Market Rental Rate is closer to the actual Fair Market Rental Rate and shall select such closer determination as the Fair Market Rental Rate and notify Landlord and Tenant thereof.

4.4 The decision of the majority of the three (3) arbitrators shall be binding upon Landlord and Tenant.

4.5 If either Landlord or Tenant fails to appoint an arbitrator within the time period specified in Section 4.1 hereinabove, the arbitrator appointed by one of them shall reach a decision, notify Landlord and Tenant thereof, and such arbitrator's decision shall be binding upon Landlord and Tenant.

4.6 If the two (2) arbitrators fail to agree upon and appoint a third arbitrator, within the time period provided in Section 4.2 above, then the parties shall mutually select the third arbitrator. If Landlord and Tenant are unable to agree upon the third arbitrator within ten (10) days after the fifteen (15) day period described in Section 4.2 above, then either party may, upon at least five (5) days' prior written notice to the other party, request the Presiding Judge of the San Mateo County Superior Court, acting in his private and nonjudicial capacity, to appoint the third arbitrator. Following the appointment of the third arbitrator, the panel of arbitrators shall within thirty (30) days thereafter reach a decision as to whether Landlord's or Tenant's submitted Fair Market Rental Rate shall be used and shall notify Landlord and Tenant thereof. Landlord and Tenant shall each pay the costs of its own arbitrator and fifty percent (50%) of the cost of the third arbitrator.

Exhibit 10.2

FIRST AMENDMENT TO LEASE
(Two Tower Place)

THIS FIRST AMENDMENT TO LEASE ("**First Amendment**") is made and entered into as of the 26th day of April, 2019, by and between AP3-SF3 CT NORTH, LLC, a Delaware limited liability company ("**Landlord**") and FLUIDIGM CORPORATION, a Delaware corporation ("**Tenant**").

RECITALS:

A. Landlord and Tenant entered into that certain Lease dated as of March 20, 2019 (the "**Lease**"), whereby Landlord leases to Tenant and Tenant leases from Landlord, certain space in the building (the "**Building**") located at Two Tower Place, South San Francisco, California 94080.

B. By this First Amendment, Landlord and Tenant desire to expand the Existing Premises (defined below) to include the First Refusal Space described in the Lease and to otherwise modify the Lease as provided herein.

C. Unless otherwise defined herein, capitalized terms as used herein shall have the

D. NOW, THEREFORE, in consideration of the foregoing recitals and the mutual covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

AGREEMENT:

1. Existing Premises. Landlord and Tenant hereby agree that pursuant to the Lease, Landlord currently leases to Tenant and Tenant currently leases from Landlord that certain space in the Building containing approximately 67,746 rentable square feet square feet of space located on a portion of the eighteenth (18th) floor of the Building and the entirety of the nineteenth (19th), twentieth (20th) and twenty-first (21st) floors of the Building (the "**Existing Premises**"), all as more particularly described in the Lease.

2. Expansion of the Existing Premises; Expansion Commencement Date; Expansion Space Term.

2.1. Expansion Space. That certain space described in Section 1.4 of the Lease as the "**First Refusal Space**" and located on the eighteenth (18th) floor of the Building (the "**Expansion Space**"), as outlined on the floor plan attached hereto as **Exhibit A** and made a part hereof, and consisting of approximately 10,183 rentable square feet, may be referred to herein as the "**Expansion Space**." Effective as of the date hereof, Section 1.4 of the Lease is hereby deemed deleted in its entirety and is of no further force or effect.

2.2. Expansion Commencement Date. Effective as of the date hereof, subject to Section 2.3 below, Tenant shall lease from Landlord and Landlord shall lease to Tenant, the Expansion Space and the Existing Premises shall be increased to include the Expansion Space.

Such addition of the Expansion Space to the Existing Premises shall increase the total rentable square footage of the Premises to 77,929 (and Section 6.1 of the Summary of the Lease is hereby deemed revised to reflect such rentable square footage amount and that Tenant is leasing the entirety of the eighteenth (18th) floor of the Building (and not a portion thereof)). Effective as of the date hereof, all references to the "**Premises**" in the Lease shall mean and refer to the Existing Premises as expanded by the Expansion Space.

2.3. Expansion Space Term. The Term of Tenant's lease of the Expansion Space shall commence on the Lease Commencement Date and shall expire on the Lease Expiration Date, subject to Tenant's extension rights in the Lease.

3. Base Rent. Notwithstanding anything to the contrary in the Lease and effective as of the date hereof, Section 8 of the Summary of the Lease is deemed deleted in its entirety and replaced with the following:

Period	Annual Base Rent	Monthly Installment of Base Rent*	Monthly Rental Rate per Rentable Square Foot*
*** 1 – 8	$2,617,260.80	$327,157.60	$5.60
9 – 12	$5,236,828.80	$436,402.40	$5.60
13 – 24	$5,420,117.76	$451,676.48	$5.80 **
25 – 36	$5,609,821.92	$467,485.16	$6.00 **
37 – 48	$5,806,165.68	$483,847.14	$6.21 **
49 – 60	$6,009,381.48	$500,781.79	$6.43 **
61 – 72	$6,219,709.80	$518,309.15	$6.65 **
73 – 84	$6,437,399.64	$536,449.97	$6.88 **
85 – 96	$6,662,708.64	$555,225.72	$7.12 **
97 – 108	$6,895,903.44	$574,658.62	$7.37 **
109 – 120	$7,137,260.04	$594,771.67	$7.63 **
121 – 123	$7,387,064.16	$615,588.68	$7.90 **

* The initial monthly installment of Base Rent amount was calculated by multiplying the initial monthly Base Rent rate per rentable square foot amount by the number of rentable square feet of space in the Premises, and the annual Base Rent amount was calculated by multiplying the initial monthly installment of Base Rent amount by twelve (12). In all subsequent Base Rent payment periods during the Lease Term commencing on the first (1st) day of the full calendar month that is Lease month 13, the calculation of each monthly installment of Base Rent amount reflects an annual

increase of three and one-half percent (3-1/2%) and each annual Base Rent amount was calculated by multiplying the corresponding monthly installment of Base Rent amount by twelve (12).

** The amount identified in the column entitled "Monthly Rental Rate per Rentable Square Foot" are rounded amounts provided for informational purposes only.

*** Subject to abatement as provided in Article 3 below. The Base Rent for this eight (8) month period is calculated based on 58,421 rentable square feet in the Premises notwithstanding that Tenant is leasing the entire Premises (consisting of 77,929 rentable square feet); provided, however, that Tenant shall pay Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs based on 77,929 rentable square feet in the Premises for the entire Lease Term.

4. Parking. Effective as of the date hereof, Section 12 of the Summary is deemed modified to provide that Tenant shall be entitled to a total of two hundred thirty-four (234) unreserved parking spaces.

5. Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs. Notwithstanding anything to the contrary in the Lease and effective as of the date hereof, Tenant's Share of Operating Expenses, Tax Expenses and Utilities Costs set forth in Section 9 of the Summary of the Lease is hereby deemed increased to 20.81%.

6. Brokers. Each party represents and warrants to the other that, except for Newmark Cornish & Carey ("**Landlord's Broker**") and Savills Studley ("**Tenant's Broker**"), it has no dealings with any real estate broker or an agent in connection with negotiating this First Amendment and it knows of no other broker, agent or finder who is entitled to a commission in connection with this First Amendment. Each party further agrees to defend, indemnify and hold harmless the other party from and against any claim for commission or finder's fee by any person or entity (other than Landlord's Broker or Tenant's Broker) who claims or alleges that they were retained or engaged by the first party or at the request of such party in connection with this First Amendment. Landlord shall pay the commission due to Tenant's Broker in connection with this First Amendment pursuant to a separate agreement.

7. Additional Hazardous Material Storage Areas. Effective as of the date hereof, Tenant shall be entitled to use the additional hazardous material storage areas depicted on **Exhibit C** (all in addition to Tenant's existing hazardous material storage areas).

8. Final Space Plan. Effective as of the date hereof, the Final Space Plans attached to the Lease as **Schedule 1** to **Exhibit B** are deemed deleted and replaced by the space plans attached hereto as **Exhibit B** (and Section 2 of the **Exhibit B** is deemed modified to provide that such plans were prepared by McFarlane and dated March 28, 2019).

9. Recalculation of Allowance, Additional Allowance and Amortization Rent. Effective as of the date hereof, (i) the reference to the Allowance in Section 3 of **Exhibit B** is deemed revised to be equal to $13,715,504.00 (based on 77,929 rentable square feet in the Premises), (ii) the reference to the Additional Allowance in Section 3 of **Exhibit B** is deemed revised to be equal to $1,948,225.00 (based on 77,929 rentable square feet in the Premises), and (iii) the Amortization

Rent in the example in Section 3 of **Exhibit B** is deemed revised to be equal to $24,308.03 per month.

10. Signing Authority. Each of Landlord and Tenant hereby represents and warrants that each person signing on behalf of Landlord and Tenant, respectively, is authorized to do so. Each of Landlord and Tenant represents and warrants that it is a duly formed and existing entity qualified to do business in the State of California and has full right and authority to execute and deliver this First Amendment.

11. No Further Modification. Except as set forth in this First Amendment, all of the terms and provisions of the Lease shall remain unmodified and in full force and effect.

IN WITNESS WHEREOF, this First Amendment has been executed as of the day and year first above written.

"LANDLORD"

AP3-SF3 CT NORTH, LLC,
a Delaware limited liability company

By: /s/ W. Neil Fox III
Name: W. Neil Fox III
Its: Chief Executive Offier

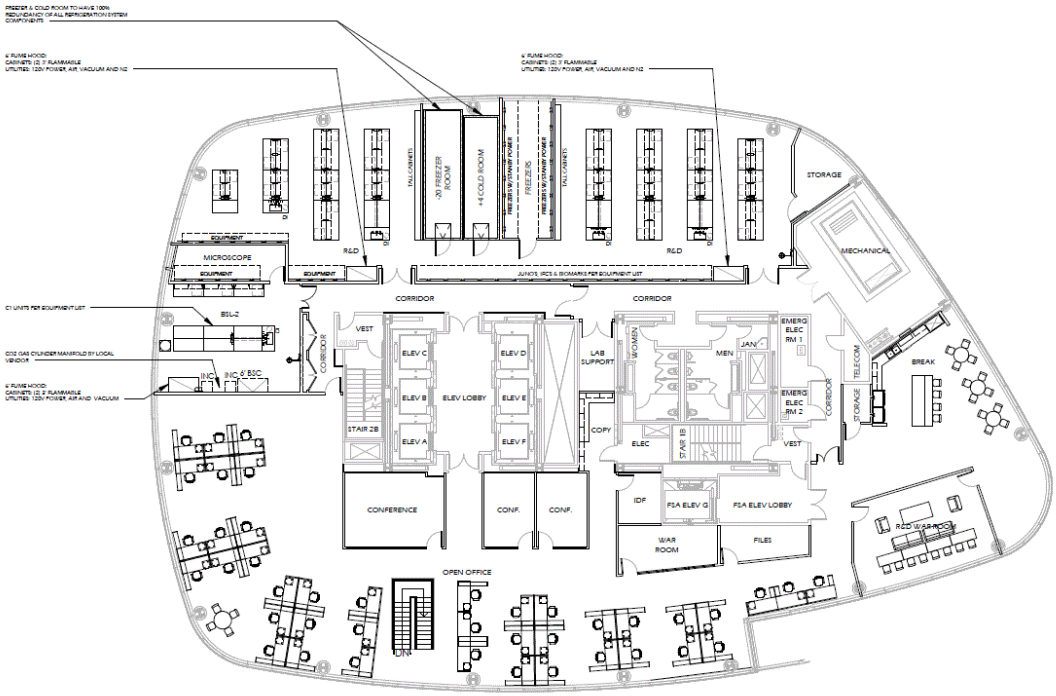
"TENANT"

FLUIDIGM CORPORATION,
a Delaware corporation

By: /s/ Bradley Kreger
Name: Bradley Kreger
Its: SVP, Global Operations

EXHIBIT A

EXPANSION SPACE



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 18 - FLUIDIGM
1/16" = 1'-0"

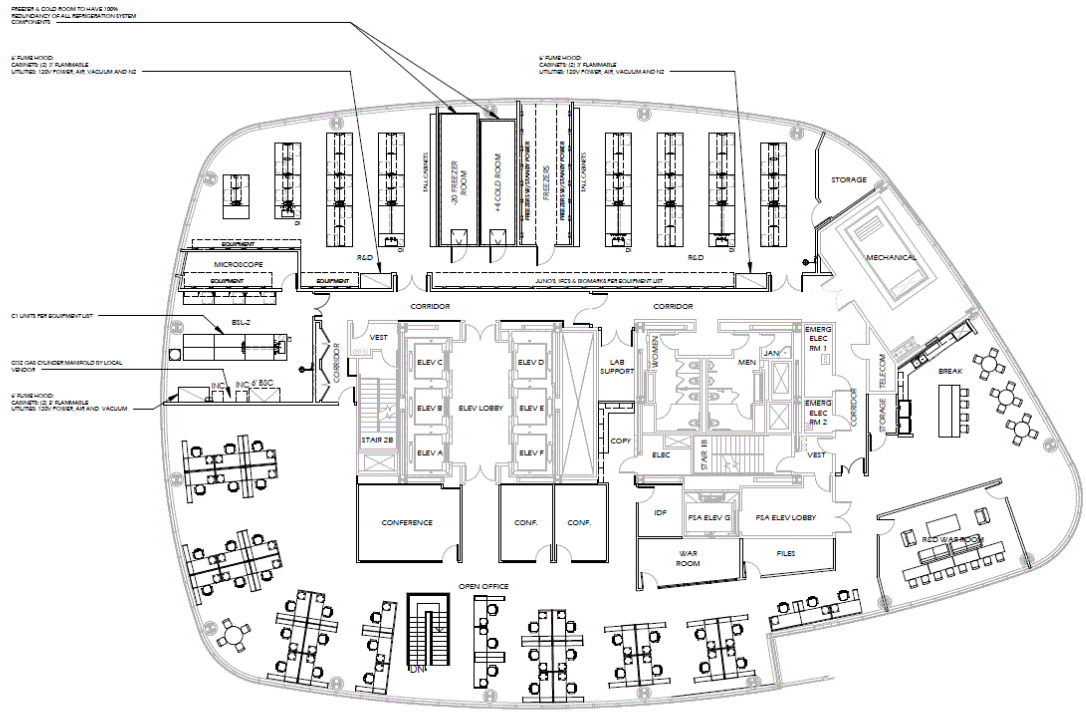
03-28-19 N

McFARLANE ARCHITECTS PHASE3 GENESIS

883222.02/SD
374622-00096/4-22-19/MLT/pah

EXHIBIT B

FINAL SPACE PLAN

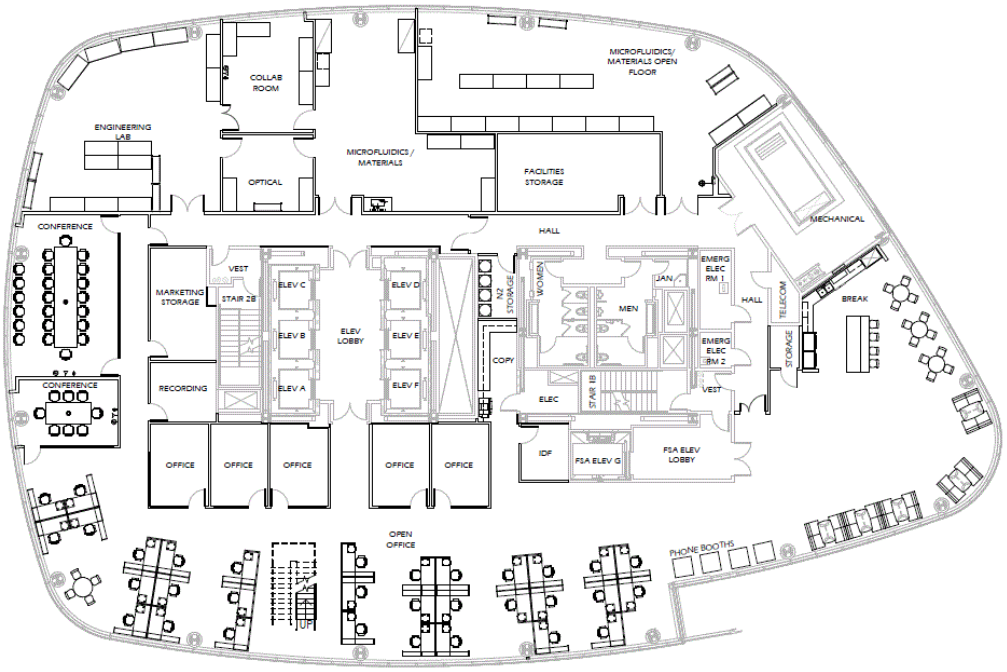


GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 18 - FLUIDIGM
1/16" = 1'-0"

C:\Users\jpc\Documents\11725 - GNT LTR21 FluidigmSpecFL_LAT8_jpc.rvt 03-28-19

N

McFARLANE ARCHITECTS | PHASE3 | GENESIS



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 19 - FLUIDIGM

1/16" = 1'-0"

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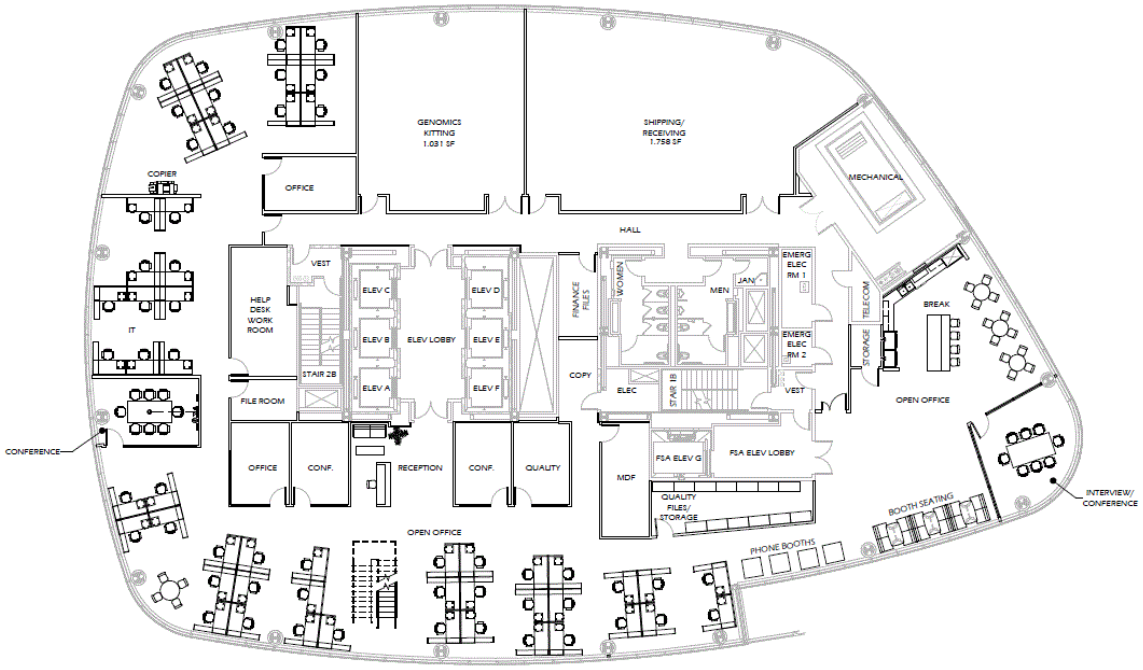
N

McFARLANE ARCHITECTS | PHASE3 | GENESIS

883222.02/SD
374622-00096/4-22-19/MLT/pah



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 20 - FLUIDIGM

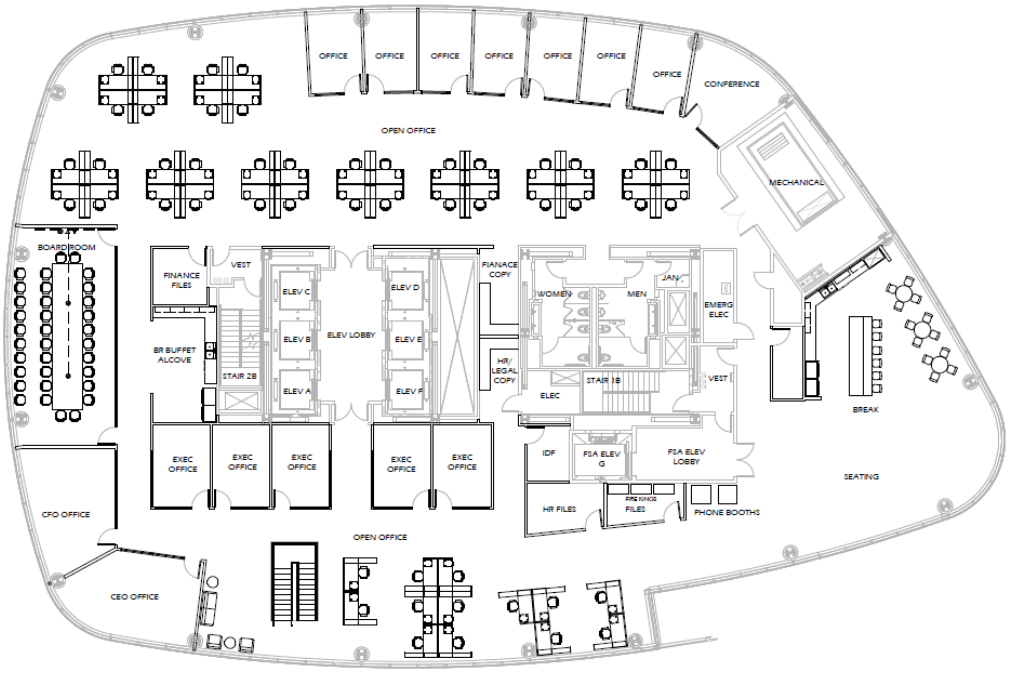
1/16" = 1'-0"

03-28-19

N

McFARLANE ARCHITECTS | PHASE3 | GENESIS

883222.02/SD
374622-00096/4-22-19/MLT/pah



GENESIS - TWO TOWER PLACE
CONCEPTUAL FLOOR PLAN - LEVEL 21 - FLUIDIGM

1/16" = 1'-0"

03-28-19

N

McFARLANE ARCHITECTS

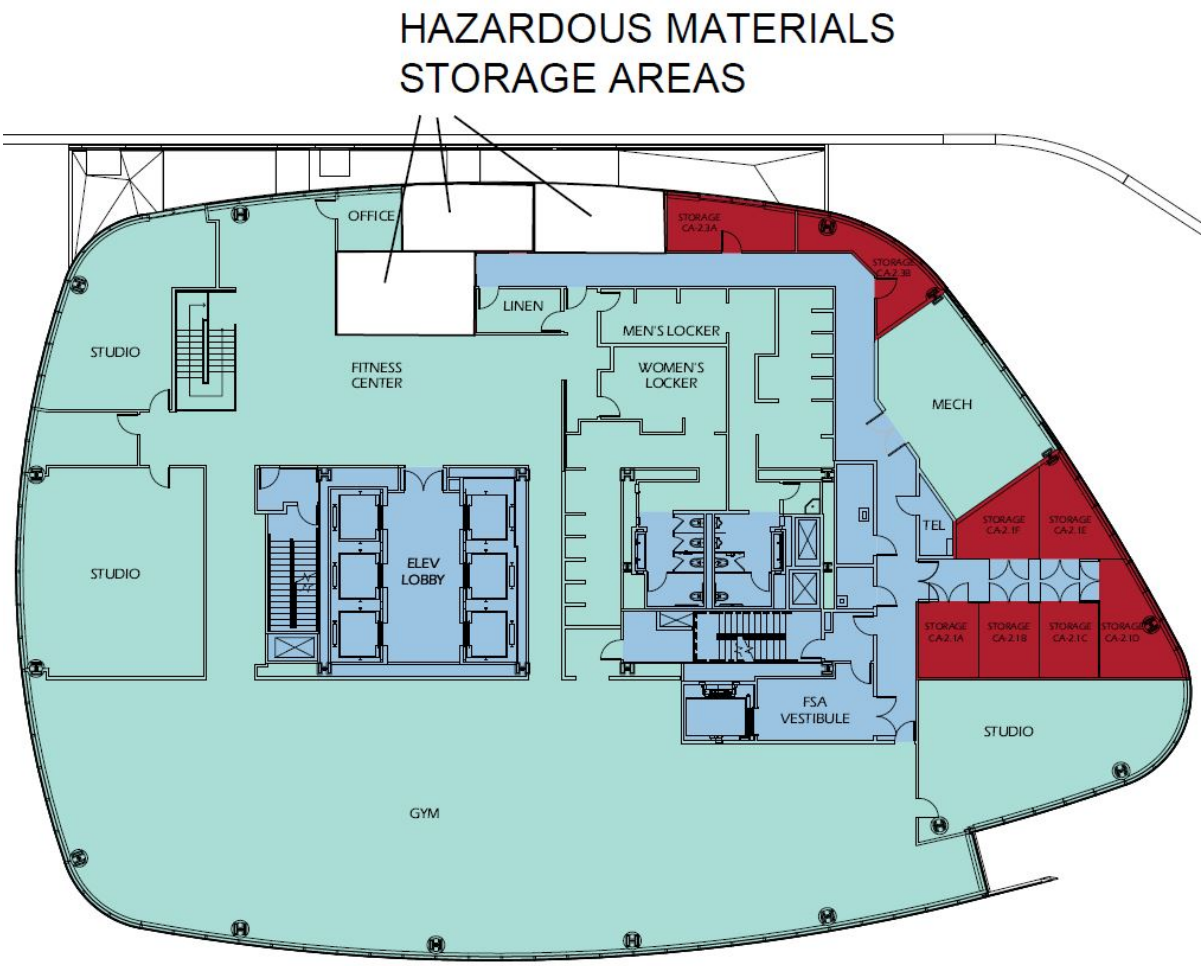
PHASE3

GENESIS

883222.02/SD
374622-00096/4-22-19/MLT/pah

EXHIBIT C

ADDITIONAL HAZARDOUS MATERIAL STORAGE AREAS



883222.02/SD
374622-00096/4-22-19/MLT/pah

Exhibit 31.1

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

I, Stephen Christopher Linthwaite, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Fluidigm Corporation;

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

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

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

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

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

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

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

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

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

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

Dated: May 7, 2019

By: /s/ Stephen Christopher Linthwaite
Stephen Christopher Linthwaite
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

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

I, Vikram Jog, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Fluidigm Corporation;

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

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

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

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

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

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

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

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

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

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

Dated: May 7, 2019

By: /s/ Vikram Jog
Vikram Jog
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF PRESIDENT AND CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. § 1350, AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

I, Stephen Christopher Linthwaite, the president and chief executive officer of Fluidigm Corporation (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

(i) the Quarterly Report of the Company on Form 10-Q for the quarter ended March 31, 2019 (the "Report"), fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

Date: May 7, 2019

By: /s/ Stephen Christopher Linthwaite

Stephen Christopher Linthwaite
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

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

I, Vikram Jog, the chief financial officer of Fluidigm Corporation (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

(i) the Quarterly Report of the Company on Form 10-Q for the quarter ended March 31, 2019 (the "Report"), fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

Date: May 7, 2019

By: /s/ Vikram Jog
Vikram Jog
Chief Financial Officer
(Principal Financial Officer)