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

FORM 10-Q

(Mark One)

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

For the quarterly period ended June 30, 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 001-35348

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

Delaware	**20-1616267**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
3011 N. First Street San Jose, California	**95134**
(Address of Principal Executive Offices)	**(Zip Code)**

(408) 582-5700
(Registrant's Telephone Number, Including Area Code)

(Address, including zip code, and telephone number, including area code of Registrant's principal executive offices)

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

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

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

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

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

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

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

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

As of August 02, 2019, the registrant had 49,758,224 shares of common stock outstanding.

INTERMOLECULAR, INC.

FORM 10-Q FOR THE QUARTER ENDED JUNE 30, 2019

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PART I — FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

INTERMOLECULAR, INC. AND SUBSIDIARIES

Condensed Consolidated Balance Sheets

(In thousands, except share and per share data)

(Unaudited)

	June 30, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 2,160	$ 8,351
Short-term investments	21,753	22,098
Accounts receivable	1,941	3,349
Prepaid expenses and other current assets	1,004	936
Total current assets	26,858	34,734
Materials inventory	2,375	2,638
Property and equipment, net	2,809	3,432
Intangible assets, net	1,892	2,075
Right-of-use lease assets - operating	10,841	—
Other assets	503	514
Total assets	$ 45,278	$ 43,393
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 112	$ 760
Accrued liabilities	1,592	1,234
Accrued compensation and employee benefits	1,984	3,431
Current portion of lease obligation - operating	1,816	—
Deferred revenue	159	917
Total current liabilities	5,663	6,342
Deferred rent	—	2,667
Long term lease obligation - operating	11,832	—
Total liabilities	17,495	9,009
Commitments and contingencies (note 5)		
Stockholders' equity:		
Common stock, par value $0.001 per share—200,000,000 shares authorized; 49,758,224 and 49,752,516 shares issued and outstanding as of June 30, 2019 and December 31, 2018, respectively	50	50
Additional paid-in capital	216,974	216,034
Accumulated other comprehensive income (loss)	28	(27)
Accumulated deficit	(189,269)	(181,673)
Total stockholders' equity	27,783	34,384
Total liabilities and stockholders' equity	$ 45,278	$ 43,393

See accompanying notes to unaudited Condensed Consolidated Financial Statements

INTERMOLECULAR, INC. AND SUBSIDIARIES

Condensed Consolidated Statements of Operations

(In thousands, except share and per share data)

(Unaudited)

	Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Revenue:				
Program revenue	$ 4,485	$ 9,365	$ 10,870	$ 18,621
Licensing and royalty revenue	133	437	399	856
Total revenue	4,618	9,802	11,269	19,477
Cost of revenue:				
Cost of program revenue	1,437	2,856	3,255	6,231
Cost of licensing and royalty revenue	—	3	—	4
Total cost of revenue	1,437	2,859	3,255	6,235
Gross profit	3,181	6,943	8,014	13,242
Operating expenses:				
Research and development	4,216	4,056	8,362	8,087
Sales and marketing	974	858	1,864	1,654
General and administrative	3,494	1,748	5,832	4,034
Total operating expenses	8,684	6,662	16,058	13,775
Income (loss) from operations	(5,503)	281	(8,044)	(533)
Other income (expense):				
Interest income (expense), net	172	140	355	245
Other income (expense), net	(3)	75	93	162
Total other income (expense), net	169	215	448	407
Income (loss) before provision for income taxes	(5,334)	496	(7,596)	(126)
Provision for income taxes	—	—	—	1
Net income (loss)	$ (5,334)	$ 496	$ (7,596)	$ (127)
Earnings (loss) per share:				
Basic	$ (0.11)	$ 0.01	$ (0.15)	$ (0.00)
Diluted	$ (0.11)	$ 0.01	$ (0.15)	$ (0.00)
Weighted-average number of shares used in computing earnings (loss) per share				
Basic	49,758,224	49,672,739	49,757,917	49,627,584
Diluted	49,758,224	50,059,639	49,757,917	49,627,584

See accompanying notes to unaudited Condensed Consolidated Financial Statements

Condensed Consolidated Statements of Comprehensive Income (Loss)

(In thousands)

(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net income (loss)	$ (5,334)	$ 496	$ (7,596)	$ (127)
Change in unrealized gain (loss) on available-for-sale-securities, net of tax	21	16	55	(7)
Comprehensive income (loss), net of income tax	$ (5,313)	$ 512	$ (7,541)	$ (134)

See accompanying notes to unaudited Condensed Consolidated Financial Statements

INTERMOLECULAR, INC. AND SUBSIDIARIES

Condensed Consolidated Statements of Cash Flows

(In thousands)

(Unaudited)

	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Cash flows from operating activities:		
Net loss	$ (7,596)	$ (127)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation, amortization, and accretion	1,123	2,693
Amortization expense - Right-of-use lease assets operating	787	—
Stock-based compensation	935	482
Loss on disposal of property and equipment	2	—
Changes in operating assets and liabilities:		
Accounts receivable	1,408	4,074
Prepaid expenses and other assets	(57)	393
Materials inventory	291	(134)
Accounts payable	(520)	(750)
Accrued and other liabilities	(1,634)	(67)
Deferred revenue	(759)	(633)
Net cash (used in) provided by operating activities	(6,020)	5,931
Cash flows from investing activities:		
Purchase of investments	(13,804)	(19,367)
Redemption of investments	14,202	12,010
Purchase of property and equipment	(574)	(489)
Net cash used in investing activities	(176)	(7,846)
Cash flows from financing activities:		
Proceeds from exercise of common stock options	5	172
Net cash provided by financing activities	5	172
Net decrease in cash and cash equivalents	(6,191)	(1,743)
Cash and cash equivalents at beginning of period	8,351	6,090
Cash and cash equivalents at end of period	$ 2,160	$ 4,347
Supplemental disclosure of cash flow information:		
Cash paid for income taxes, net of refunds received	$ 1	1
Noncash investing/operating activities:		
Transfer of property and equipment to materials inventory	$ 181	$ 63
Transfer of materials inventory to property and equipment	$ 150	$ 142
Additions to property, equipment and intangible assets not paid at the end of the period	$ 28	$ 79

See accompanying notes to unaudited Condensed Consolidated Financial Statements

1. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying Condensed Consolidated Financial Statements of Intermolecular, Inc. and subsidiaries (the Company) have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP) for interim financial information, the instructions to Form 10-Q and Article 10 of Regulation S-X of the Securities and Exchange Commission (SEC). Accordingly, certain information and disclosures normally included in complete financial statements prepared in accordance with GAAP have been condensed or omitted. The information in this report should be read in conjunction with the Company's audited Consolidated Financial Statements and notes thereto included in its Annual Report on Form 10-K for the fiscal year ended December 31, 2018, as filed with the SEC on March 8, 2019. Certain amounts in the prior year's presentations have been reclassified to conform to the current presentation. These reclassifications had no effect on previously reported net income.

In the opinion of management, the accompanying unaudited Condensed Consolidated Financial Statements reflect all adjustments (consisting only of normal recurring adjustments) necessary to present fairly the Company's financial position, results of operations and cash flows for the interim periods presented. The operating results for the three and six months ended June 30, 2019 are not necessarily indicative of the results that may be expected for any other future interim period or full year. The Condensed Consolidated Balance Sheet as of December 31, 2018 is derived from the audited Consolidated Financial Statements.

Agreement and Plan of Merger

On May 6, 2019, the Company entered into an Agreement and Plan of Merger (the Merger Agreement) with EMD Group Holding II, Inc., a Delaware corporation and an indirect wholly owned subsidiary of Merck KGaA, Darmstadt, Germany (Parent) and EMD Performance Materials Semiconductor Services Corp., a Delaware corporation and a wholly owned subsidiary of Parent (Merger Sub), providing for the merger of Merger Sub with and into the Company (the Merger), with the Company surviving the Merger as a wholly owned subsidiary of Parent (the Surviving Corporation). The Merger Agreement was unanimously approved by the Company's Board of Directors and the Executive Board of Merck KGaA, Darmstadt, Germany.

Pursuant to the terms and subject to the conditions of the Merger Agreement, at the effective time of the Merger (the Effective Time), each share of the Company's common stock, par value $0.001 per share (each such share, a Company Share and collectively the Company Shares), that is outstanding immediately prior to the Effective Time (excluding (i) any shares owned by the Company, Parent or Merger Sub or any direct or indirect wholly owned subsidiary of the Company, Parent or Merger Sub (which will be canceled) and (ii) any shares with respect to which appraisal rights have been properly exercised under Delaware law (Dissenting Company Shares)) will be canceled and automatically converted into the right to receive $1.20 in cash, without interest thereon (the Merger Consideration).

Pursuant to the terms and subject to the conditions of the Merger Agreement, effective as of immediately prior to the Effective Time, (i) the vesting of each option to purchase Company Shares (each a Company Option) that remains outstanding and unvested as of immediately prior to the Effective Time shall be accelerated in full, (ii) each Company Option that remains outstanding as of immediately prior to the Effective Time shall be canceled and terminated as of the Effective Time and (iii) the holder of each such Company Option shall be paid an amount in cash (without interest), if any, equal to the product obtained by multiplying (x) the aggregate number of Company Shares underlying such Company Option immediately prior to the Effective Time, by (y) the amount, if any, by which the Merger Consideration exceeds the per share exercise price of such Company Option.

Pursuant to the terms and subject to the conditions of the Merger Agreement, effective as of immediately prior to the Effective Time, (i) the vesting of each award of restricted stock units or performance stock units (each a Company RSU Award) that remains outstanding as of immediately prior to the Effective Time shall be accelerated in full (with any applicable performance criteria being deemed achieved at the maximum possible level of achievement for such performance criteria), (ii) each Company RSU Award that remains outstanding as of immediately prior to the Effective Time shall be canceled and terminated as of the Effective Time and (iii) the holder of each such Company RSU Award shall be entitled to be paid an amount in cash (without interest) equal to the product obtained by multiplying (x) the aggregate number of Company Shares underlying such Company RSU Award immediately prior to the Effective Time, by (y) the Merger Consideration.

The total Merger Consideration represents an equity value of approximately $62.3 million and an enterprise value of approximately $38.4 million, after accounting for the acceleration of equity awards and the Company's net cash of approximately $23.9 million at the end of the second quarter of 2019.

The consummation of the Merger is also subject to the satisfaction (or waiver, if applicable) of various customary conditions, including (i) adoption of the Merger Agreement by the requisite vote of the Company's stockholders (the Company Stockholder Approval), (ii) review and clearance by the Committee on Foreign Investment in the United States, (iii) the absence of any law or governmental order making illegal or prohibiting the Merger, (iv) the accuracy of the representations and warranties of each party contained in the Merger Agreement (subject to certain materiality qualifications), (v) each party's compliance with or performance of the covenants and agreements in the Merger Agreement in all material respects and (vi) other customary closing conditions.

In connection with the Merger Agreement, certain executive officers, directors and stockholders of the Company (solely in their respective capacities as stockholders of the Company) holding approximately 31.0% of the outstanding Company Shares as of the date of the Merger Agreement have entered into support agreements with Parent to vote all of their Company Shares in favor of the adoption of the Merger Agreement and approval of the Merger (the Support Agreements). The Support Agreements include covenants with respect to the voting of such Company Shares in favor of approving the Merger and against any competing acquisition proposals and place certain restrictions on the transfer of the Company Shares held by the respective signatories thereto.

The Merger Agreement contains certain termination rights for the Company and Parent. Upon termination of the Merger Agreement under specified circumstances, including in connection with the Company's entry into a definitive agreement providing for the consummation of a superior proposal as permitted under the Merger Agreement, the Company will be required to pay Parent a termination fee of $2.3 million.

The foregoing description of the Merger Agreement and the Support Agreements does not purport to be complete and is qualified in its entirety by reference to the Merger Agreement, which was filed as Exhibit 2.1 to the Company's Current Report on Form 8-K filed on May 6, 2019, and the Support Agreements, executed in substantially the form which was filed as Exhibit 2.2 to the Company's Current Report on Form 8-K filed on May 6, 2019.

During the six months ended June 30, 2019, the Company recorded acquisition-related costs of $2.2 million in operating expenses within its condensed consolidated statements of operations.

Use of Estimates

The preparation of the accompanying Condensed Consolidated Financial Statements in conformity with GAAP requires management to make estimates and assumptions about future events. These estimates and the underlying assumptions affect the amounts of assets and liabilities reported, disclosures about contingent assets and liabilities, and reported amounts of revenue and expenses. Management uses estimates and judgments in determining recognition of revenues, valuations of accounts receivable, inventories, intangible assets, warrants and assumptions used in the calculation of income taxes and stock-based compensation, among others. These estimates and assumptions are based on management's best estimates and judgment. Management evaluates its estimates and assumptions on an ongoing basis using historical experience and other factors, and adjusts such estimates and assumptions when facts and circumstances dictate. As future events and their effects cannot be determined with precision, actual results could differ significantly from these estimates.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentration of credit risk consist of cash, cash equivalents, investments and accounts receivable. The Company's cash, cash equivalents and investments consist of demand deposits, money market accounts, certificates of deposit, corporate bonds and commercial paper maintained with high quality financial institutions. The Company's accounts receivable consists of non-interest bearing balances due from credit-worthy customers.

Significant Accounting Policies

Adoption of New Accounting Standard

Adoption of ASC 842

On January 1, 2019, the Company adopted FASB Accounting Standards Codification (ASC) Topic 842, *Leases* (ASC 842), which requires the recognition of the right-of-use assets and related operating and finance lease liabilities on the balance sheet. As permitted by ASC 842, the Company elected the adoption date of January 1, 2019, which is the date of initial application. As a result, the consolidated balance sheet prior to January 1, 2019 was not restated, continues to be reported under ASC Topic 840, *Leases* (ASC 840), which did not require the recognition of operating lease liabilities on the balance sheet, and is not comparative. Under ASC 842, all leases are required to be recorded on the balance sheet and are classified as either operating leases or finance leases. The lease classification affects the expense recognition in the income statement. Operating lease charges are recorded entirely in operating expenses. Finance lease charges are split, where amortization of the right-of-use asset is recorded in operating expenses and an implied interest component is recorded in interest expense. The expense recognition for operating leases and finance leases under ASC 842 is substantially consistent with ASC 840. As a result, there is no significant difference in the Company's results of operations presented in its condensed consolidated statement of operations and condensed consolidated statement of comprehensive income (loss) for each period presented.

The Company adopted ASC 842 using a modified retrospective approach for all leases existing at January 1, 2019. The adoption of ASC 842 had a substantial impact on the Company's balance sheet. The most significant impact was the recognition of the operating lease right-of-use assets and the liability for operating leases. The Company did not have any finance leases as December 31, 2018 and March 31, 2019. Accordingly, upon adoption, leases that were classified as operating leases under ASC 840 were classified as operating leases under ASC 842, and the Company recorded an adjustment of $11.6 million to operating lease right-of-use assets and the related lease liability. The lease liability is based on the present value of the remaining minimum lease payments, determined under ASC 840, discounted using the Company's secured incremental borrowing rate at the effective date of January 1, 2019, using the original lease term as the tenor. As permitted under ASC 842, the Company elected several practical expedients that permit us to not reassess (1) whether a contract is or contains a lease, (2) the classification of existing leases, and (3) whether previously capitalized costs continue to qualify as initial indirect costs. The application of the practical expedients did not have a significant impact on the measurement of the operating lease liability.

The impact of the adoption of ASC 842 on the balance sheet at December 31, 2018 was (in thousands):

	As Reported December 31, 2018	Adoption of ASC 842 Increase (Decrease)	Balance at January 1, 2019
Condensed Consolidated Balance Sheet			
ASSETS			
Right-of-use lease assets - operating	$ —	$ 11,628	$ 11,628
Total assets	$ 43,393	$ 11,628	$ 55,021
LIABILITIES AND STOCKHOLDERS' EQUITY			
Accrued liabilities	$ 1,234	$ (271)	$ 963
Current portion of lease obligation - operating	—	1,801	1,801
Total current liabilities	6,342	1,530	7,872
Deferred rent, net of current portion	2,667	(2,667)	—
Long term lease obligation - operating	—	12,765	12,765
Total liabilities	9,009	11,628	20,637
Total liabilities and stockholders' equity	$ 43,393	$ 11,628	$ 55,021

Revenue Recognition

The Company derives its revenue from two principal sources: 1) program services and 2) licensing and royalty revenues, which consist of technology licensing and royalty fees. Product sales have been made historically, but are not a principal source of revenue.

Program revenue - The Company enters into development programs and other research and development service agreements with customers under which the Company conducts research and development activities with customers. The agreements specify minimum levels of research effort required to be performed by the Company. Payments received under the agreements are not refundable if the research effort is not successful. In some contracts, the Company retains rights to certain elements of technology developed in the course of its performance, which the customer has an option to license in the future under the terms defined in the agreement. The Company generates a significant portion of its program revenue from certain research and development service contracts delivered over a specific period of time. These contracts require reliable estimation of costs to perform obligations and the overall scope of each engagement. Revenue from contracts is recognized using the following five steps:

a) Identify the contract(s) with a customer
b) Identify the performance obligations in the contract
c) Determine the transaction price
d) Allocate the transaction price to the performance obligations in the contract
e) Recognize revenue when (or as) the Company satisfies a performance obligation

A contract contains a promise (or promises) to transfer goods or services to a customer. A performance obligation is a promise (or a group of promises) that is distinct. The transaction price is the amount of consideration a Company expects to be entitled from a customer in exchange for providing the goods or services.

The unit of account for revenue recognition is a performance obligation (a good or service). A contract may contain one or more performance obligations. Performance obligations are accounted for separately if they are distinct. A good or service is distinct if the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer, and the good or service is distinct in the context of the contract. Otherwise performance obligations are combined with other promised goods or services until the Company identifies a bundle of goods or services that is distinct.

The transaction price is allocated to all the separate performance obligations in an arrangement. It reflects the amount of consideration to which the Company expects to be entitled in exchange for transferring goods or services, which may include an estimate of variable consideration to the extent that it is probable of not being subject to significant reversals in the future based on the Company's experience with similar arrangements. The transaction price also reflects the impact of the time value of money if there is a significant financing component present in an arrangement. The transaction price excludes amounts collected on behalf of third parties, such as sales taxes.

Revenue is recognized when the Company satisfies each performance obligation by transferring control of the promised goods or services to the customer. Goods or services can transfer at a point in time or over time depending on the nature of the arrangement.

A majority of the Company program services revenue is recognized as services are performed using percentage of completion method of contract accounting based on the output or input (i.e., units or labor hours) method, whichever is the most appropriate measure of progress towards completion of the contract.

Input method: The use of the input method requires the Company to make reasonably dependable estimates. The Company uses the input method based on labor hours, where revenue is calculated based on the percentage of total hours incurred in relation to total estimated hours at completion of the contract. The input method is reasonable when the hours best reflect the Company's efforts toward satisfying the performance obligation over time. As circumstances change over time, the Company updates its measure of progress to reflect any changes in the outcome of the performance obligation. Such changes to the Company's measure of progress is accounted for as a change in accounting estimate.

Output method: The Company uses the output method based on results achieved and delivered to the customer, where revenue is calculated based on the deliverables transferred to the customers as a percentage of total deliverables to be transferred to the customer at completion of the contract. The output method is reasonable when the deliverables best reflect the Company's efforts toward satisfying the performance obligation over time.

Licensing and royalty revenue - The Company recognizes revenue for licenses to intellectual property when earned pursuant to the terms of the agreements. Time-based license revenue is recognized ratably over the license term. Licensing and royalty revenue that becomes triggered by specific customer actions, such as exercise of a license option or by sales volume, is based on estimated end-market sales of products that incorporate the Company's intellectual property. Revenue on the sale of intellectual property is recognized in full when title transfers if there are no remaining deliverables related to the intellectual property purchase.

Contract Balances

The timing of revenue recognition, billings and cash collections results in billed accounts receivable, unbilled receivables (contract assets), and deferred revenue (contract liabilities) on the Condensed Consolidated Balance Sheet. For the Company's contracts, amounts are billed at periodic intervals, such as on monthly basis. Generally, contract assets results from revenue recognition in advance of billings, and contract liabilities results from billing in advance of revenue recognition. These assets and liabilities are reported on the Condensed Consolidated Balance Sheets at the end of each reporting period. The following table provides information about contract assets and contract liabilities from contracts with customers (in thousands):

	Balance at June 30, 2019	Balance at December 31, 2018
Receivables, which are included in accounts receivable	$ 1,662	$ 2,258
Contract assets	279	1,091
Contract liabilities	$ 159	$ 917

All of the contract liability balance of $0.9 million as of December 31, 2018 was recognized as revenue for the six months ended June 30, 2019.

Practical Expedients and Exemptions

The Company generally expenses sales commissions when incurred if the amortization period is one year or less. These costs are recorded within sales and marketing expenses.

The Company does not disclose the value of unsatisfied performance obligations for contracts with an original expected length of one year or less. As of June 30, 2019 there were no outstanding contracts with an original expected length of more than one year.

Materials Inventory

Materials inventory consists of raw materials in the amount of $2.4 million and $2.6 million as of June 30, 2019 and December 31, 2018, respectively.

Accounts Receivable and Allowance for Doubtful Accounts

The Company did not have any allowance for doubtful accounts as of June 30, 2019 and December 31, 2018.

There have been no other significant changes to the Company’s accounting policies since it filed its audited Consolidated Financial Statements in its Annual Report on Form 10-K for the year ended December 31, 2018.

Concentration of Revenue and Accounts Receivable

Significant customers are those that represent more than 10% of the Company’s total revenue or accounts receivable. For each significant customer, including related parties, revenue as a percentage of total revenue and accounts receivable as a percentage of total accounts receivable are as follows:

	Revenue				Accounts Receivable	
	Three Months Ended June 30,		Six Months Ended June 30,		As of June 30,	As of December 31,
	2019	2018	2019	2018	2019	2018
Customer A	68%	*	57%	*	52%	26%
Customer B	*	64%	10%	61%	*	*
Customer C	13%	18%	13%	23%	*	10%
Customer D	14%	*	13%	*	27%	26%
Customer E	*	*	*	*	*	12%
Customer F	*	*	*	*	*	17%

* less than 10%

Recent Accounting Pronouncements

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments* (ASU 2016-13), which changes the impairment model for most financial assets. The new model uses a forward-looking expected loss method, which will generally result in earlier recognition of allowances for losses. ASU 2016-13 is effective for annual and interim periods beginning after December 15, 2019 and early adoption is permitted for annual and interim periods beginning after December 15, 2018. The Company will adopt ASU 2016-13 on January 1, 2020. The Company doesn't expect material impact on its results of operations or financial position due to adaption of the standard.

2. Fair Value of Financial Instruments

The Company measures and reports its cash equivalents and investments at fair value. The carrying amounts for cash equivalents and investments approximate their fair values due to their short maturities. The following tables set forth the fair value of the Company's cash equivalents and investments by level within the fair value hierarchy (in thousands):

	As of June 30, 2019			
	Fair Value	Level I	Level II	Level III
Assets:				
Money market funds	$ 1,106	$ 1,106	$ —	$ —
Corporate debt securities and commercial paper	21,753	—	21,753	—
Total assets measured at fair value	$ 22,859	$ 1,106	$ 21,753	$ —

	As of December 31, 2018			
	Fair Value	Level I	Level II	Level III
Assets:				
Money market funds	$ 5,383	$ 5,383	$ —	$ —
Corporate debt securities and commercial paper	22,098	—	22,098	—
Total assets measured at fair value	$ 27,481	$ 5,383	$ 22,098	$ —

Debt investments are classified as "available-for-sale" and are carried at fair value based on quoted markets or other readily available market information. The Company's investment policy requires all investments to have a less than twenty four month maturity term and a minimum credit rating of A-. Unrealized gains and losses, net of taxes, are included in accumulated other comprehensive income (loss). Gains and losses are determined using the specific identification method. Cash, cash equivalents, and investments consisted of the following as of June 30, 2019 (in thousands):

	As of June 30, 2019			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
Assets:				
Cash	$ 1,054	$ —	$ —	$ 1,054
Money market funds	1,106	—	—	1,106
Corporate debt securities and commercial paper	21,781	28	—	21,753
Total cash, cash equivalents and investments	$ 23,941	$ 28	$ —	$ 23,913

As of December 31, 2018, the Company had $28,000 of unrealized losses.

3. Property and Equipment

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

	As of	
	June 30, 2019	December 31, 2018
Lab equipment and machinery	$ 59,796	$ 59,413
Leasehold improvements	6,496	6,420
Computer equipment and software	4,518	4,512
Furniture and fixtures	221	221
Construction in progress	874	1,025
Total property and equipment	71,905	71,591
Less accumulated depreciation	(69,096)	(68,159)
Property and equipment, net	$ 2,809	$ 3,432

The following table presents depreciation expense included in the Condensed Consolidated Statements of Operations and includes amortization of leasehold improvements (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Depreciation expense	$ 380	$ 1,099	$ 937	$ 2,334

4. Intangible Assets

Intangible assets, net, consist of the following (in thousands):

	As of	
	June 30, 2019	December 31, 2018
Patents issued	$ 2,714	$ 2,847
Patents pending	34	89
Trademarks	40	40
Total intangible assets	2,788	2,976
Less patent amortization	(896)	(901)
Intangible assets, net	$ 1,892	$ 2,075

The following table presents patent amortization expense included in the Condensed Consolidated Statements of Operations (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Amortization expense	$ 42	$ 56	$ 85	$ 125

5. Commitments and Contingencies

Leases

The Company has operating leases for real estate and certain office equipment. Operating lease expense was $0.6 million and $1.1 million for the three and six months ended June 30, 2019, respectively.

Supplemental cash flow information, as of June 30, 2019, related to operating leases was as follows (in thousands):

	Six Months Ended June 30, 2019
Cash paid within operating cash flows	$ 1,275
Right-of-use assets recognized in exchange for new obligations	$ —

Supplemental balance sheet information, as of June 30, 2019, related to operating leases was as follow:

Weighted average remaining lease term	3.9 Years
Weighted average discount rate	6.1%

As of June 30, 2019, the maturities of the Company's operating lease liabilities are as follow (in thousands):

Fiscal Year	Amount
2019	$ 1,285
2020	2,620
2021	2,648
2022	2,714
2023	2,782
2024 and thereafter	4,308
Total lease payments	$ 16,357
Less imputed interest	(2,709)
Present value of operating lease liabilities	$ 13,648

In December 2015, the Company signed a sublease to lease out a portion of its office space. The term of the sublease was three years and annual gross rent was approximately $0.3 million. The sublease commenced during the second quarter of 2016 and terminated during the first quarter of 2019. The Company received $0.1 million and $0.2 million in rent payments under the agreement for the six months ended June 30, 2019 and 2018, respectively.

6. Stockholders' Equity

The following represents the activities in the Company's Stockholders' Equity, by quarter, for the six months ended June 30, 2019 and 2018 (in thousands, except share data):

	Six Months Ended June 30, 2019					
	Common stock Shares	Amount	Additional paid-in capital	Accumulated deficit	Accumulated other comprehensive loss	Total stockholders' equity
Balances as of December 31, 2018	49,752,516	50	216,034	(181,672)	(28)	34,384
Issuance of common stock from option exercises	5,708	—	5	—	—	5
Vesting of restricted stock units	—	—	—	—	—	—
Stock-based compensation	—	—	463	—	—	463
Other comprehensive income (loss)	—	—	—	—	35	35
Net loss	—	—	—	(2,263)	—	(2,263)
Balances as of March 31, 2019	49,758,224	$ 50	$ 216,502	$ (183,935)	$ 7	$ 32,624
Issuance of common stock from option exercises	—	—	—	—	—	—
Vesting of restricted stock units	—	—	—	—	—	—
Stock-based compensation	—	—	472	—	—	472
Other comprehensive income (loss)	—	—	—	—	21	21
Net loss	—	—	—	(5,334)	—	(5,334)
Balances as of June 30, 2019	49,758,224	$ 50	$ 216,974	$ (189,269)	$ 28	$ 27,783

	Six Months Ended June 30, 2018					
	Common stock Shares	Amount	Additional paid-in capital	Accumulated deficit	Accumulated other comprehensive loss	Total stockholders' equity
Balances as of December 31, 2017	49,569,721	50	214,796	(178,738)	(35)	36,073
Issuance of common stock from option exercises	16,387	—	16	—	—	16
Vesting of restricted stock units	15,265	—	—			—
Stock-based compensation	—	—	270	—	—	270
Other comprehensive income (loss)	—	—	—	—	(24)	(24)
ASC 606 Adjustment	—	—	—	476	—	476
Net loss	—	—	—	(623)	—	(623)
Balances as of March 31, 2018	49,601,373	$ 50	$ 215,082	$ (178,885)	$ (59)	$ 36,188
Issuance of common stock from option exercises	135,332	—	155	—	—	155
Vesting of restricted stock units						
Stock-based compensation	—	—	212	—	—	212
Other comprehensive income (loss)					16	16
Net income	—	—	—	496	—	496
Balances as of June 30, 2018	49,736,705	$ 50	$ 215,449	$ (178,389)	$ (43)	$ 37,067

Stock-Based Compensation

The fair value of the employee stock options granted during the period was estimated based on the respective grant date using a Black-Scholes-Merton option-pricing model with the following weighted-average assumptions:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Expected term (in years)	6.1	5.9	6.1	6.0
Risk-free interest rate	1.8%	2.8%	2.0%	2.7%
Expected volatility	57.0%	53.8%	57.2%	54.0%
Expected dividend rate	—%	—%	—%	—%

Stock-based compensation expense, net of estimated forfeitures, was included in the following line items on the Condensed Consolidated Statements of Operations (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Cost of revenue	$ 36	$ 39	$ 81	$ 92
Research and development	120	59	233	114
Sales and marketing	57	21	110	51
General and administrative	259	93	511	225
Total stock-based compensation	$ 472	$ 212	$ 935	$ 482

The following table presents stock-based compensation expense, net of estimated forfeitures, by grant type (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Stock options	$ 210	$ 208	$ 440	$ 423
Restricted stock awards and restricted stock units (RSUs)	262	4	495	59
Total stock-based compensation	$ 472	$ 212	$ 935	$ 482

The following table presents unrecognized compensation expense, net of estimated forfeitures, related to the Company’s equity compensation plans as of June 30, 2019, which is expected to be recognized over the following weighted-average periods (in thousands):

	Unrecognized Compensation Expense	Weighted-Average Period (in years)
Stock options	$ 1,163	2.3
RSUs	$ 1,078	1.3

The following table presents details on grants made by the Company for the following periods:

	Six Months Ended June 30, 2019		Six Months Ended June 30, 2018	
	Shares Granted	Weighted-Average Grant Date Fair Value	Shares Granted	Weighted-Average Grant Date Fair Value
Stock options	92,000	$ 1.08	725,000	$ 1.36
RSUs	—	$ —	345,000	$ 1.35

The total intrinsic value of stock options exercised during the six months ended June 30, 2019 and 2018 was $1,000 and $28,000, respectively.

RSUs that vested during the six months ended June 30, 2019 and 2018 had fair values of $0 and $30,000, respectively, as of the applicable vesting date.

Common Stock

As of June 30, 2019 and December 31, 2018, the Company had reserved shares of common stock for issuance as follows:

	As of June 30, 2019	As of December 31, 2018
Number of stock options outstanding	6,054,745	6,329,737
Number of RSUs outstanding	1,845,000	1,845,000
Shares available for future grant	13,788,824	11,280,677
Total shares reserved	21,688,569	19,455,414

7. Net Earnings (Loss) per Share

The following outstanding shares of common stock equivalents were excluded from the computation of diluted net earnings (loss) per share for the periods presented due to their antidilutive effect:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Stock options to purchase common stock	6,054,745	6,709,548	6,054,745	7,756,239
RSUs	1,845,000	648,750	1,845,000	648,750

8. Income Taxes

The Company incurred no income tax expense for the three months and six months ended June 30, 2019. The Company maintained a valuation allowance as of June 30, 2019, against all of its deferred tax assets. The Company intends to maintain a full valuation allowance until sufficient positive evidence exists to support its reduction.

9. Related Party Transactions

During the quarter ended March 31, 2019, two of our board members ceased employment with an investment firm that is a beneficial owner of approximately 29.6% of the Company's common stock. The Company incurred director fees of nil and $11,000 to the investment firm for the three and six months ended June 30, 2019, respectively.

10. Information about Geographic Areas

Revenue

Revenue by geography is based on the billing address of the customer. The following table sets forth revenue by geographic area (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
United States	$ 3,957	$ 1,785	$ 8,459	$ 3,017
Asia-Pacific (excluding Japan)	622	8,017	2,771	16,460
Japan	39	—	39	—
Total	$ 4,618	$ 9,802	$ 11,269	$ 19,477

Long-Lived Assets

All of the Company's long-lived assets are located in the U.S.

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

Our Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is provided in addition to the accompanying Condensed Consolidated Financial Statements and notes to assist readers in understanding our results of operations, financial condition and cash flows. Our MD&A is organized as follows:

- *Overview.* Discussion of our business and overall analysis of financial and other highlights affecting our company in order to provide context for the remainder of MD&A.
- *Strategy.* Our overall strategy.
- *Basis of Presentation.* A summary of the primary elements of our financial results.
- *Critical Accounting Estimates.* Accounting estimates that we believe are most important to understanding the assumptions and judgments incorporated in our reported financial results and forecasts.
- *Results of Operations.* An analysis of our financial results comparing the three and six months ended June 30, 2019 to the three and six months ended June 30, 2018.
- *Liquidity and Capital Resources.* An analysis of changes in our balance sheets and cash flows, and discussion of our financial condition and sources of liquidity.

The following discussion and analysis should be read in conjunction with our Condensed Consolidated Financial Statements and related notes included elsewhere in this Quarterly Report on Form 10-Q (Form 10-Q) and our audited Consolidated Financial Statements and related notes included in our Annual Report on Form 10-K for our fiscal year ended December 31, 2018 (2018 Form 10-K), as filed with the Securities and Exchange Commission. This Form 10-Q contains forward-looking statements that involve risks and uncertainties, as well as assumptions that, if they never materialize or prove incorrect, could cause our results to differ materially from those expressed or implied by such forward-looking statements. The statements contained in this Form 10-Q that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements are often identified by the use of words such as, but not limited to, "may," "will," "expect," "believe," "anticipate," "intend," "could," "should," "estimate," or "continue," and similar expressions or variations intended to identify forward-looking statements. These statements are based on the beliefs and assumptions of our management based on information currently available to management. Such forward-looking statements are subject to risks, uncertainties and other important factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified below, and those discussed in the section titled "Risk Factors" in Part II, Item 1A of this Form 10-Q and in our 2018 Form 10-K. Furthermore, such forward-looking statements speak only as of the date of this Form 10-Q. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances after the date of such statements.

Overview

We are a trusted partner for the innovation of advanced materials using high throughput experimentation. Advanced materials are critical to sustaining and advancing many industries, including semiconductor and semiconductor related industries. Using traditional experimental techniques, it can take many years to discover new advanced materials and many more years to deploy them in the marketplace. By leveraging our proprietary high productivity combinatorial (HPC) equipment platform, advanced characterization abilities and multi-disciplinary development team, we strive to enable our customers to more rapidly discover advanced materials and tailor them to suit their needs.

We were founded in 2004 and are headquartered in San Jose, California. Our total revenue decreased to $4.6 million and $11.3 million for the three and six months ended June 30, 2019, from $9.8 million and $19.5 million for the three and six months ended June 30, 2018. For the three months ended June 30, 2019, our net loss increased to $5.3 million compared to a net income of $0.5 million in the same period last year. For the six months ended June 30, 2019, our net loss increased to $7.6 million compared to net loss of $0.1 million in the same period last year. Since inception, we have incurred net losses leading to an accumulated deficit of $189.3 million as of June 30, 2019.

Strategy

We currently target large markets that rely on advanced materials for differentiation. Within these broad markets, we target customers that have track records of technological innovation, have significant materials-based research and development (R&D), and are pursuing technical advancements that are critical to their success and strategy. Generally, our approach is most relevant to industries that rely heavily upon advanced thin film materials such as those achieved using physical vapor deposition (PVD) and atomic layer deposition (ALD) processing tools; however, our approach is also relevant to discovering and understanding advanced materials more broadly, including advanced bulk materials such as metal alloys. Historically, we have partnered most extensively in the semiconductor industry and particularly in the area of semiconductor memory such as dynamic RAM (DRAM), new non-volatile memory (NVM) and phase-change memory technologies. Going forward, we currently plan to continue growing our footprint within semiconductors, while expanding our engagement with semiconductor materials and equipment makers.

Agreement and Plan of Merger

On May 6, 2019, we entered into an Agreement and Plan of Merger (the Merger Agreement) with EMD Group Holding II, Inc., a Delaware corporation and an indirect wholly owned subsidiary of Merck KGaA, Darmstadt, Germany (Parent) and EMD Performance Materials Semiconductor Services Corp., a Delaware corporation and a wholly owned subsidiary of Parent (Merger Sub), providing for the merger of Merger Sub with and into the Intermolecular, Inc. (the Merger), with Intermolecular, Inc. surviving the Merger as a wholly owned subsidiary of Parent. The Merger Agreement was unanimously approved by our board of directors and the Executive Board of Merck KGaA, Darmstadt, Germany.

Pursuant to the terms and subject to the conditions of the Merger Agreement, at the effective time of the Merger (the Effective Time), each share of our common stock, par value $0.001 per share, that is outstanding immediately prior to the Effective Time (excluding (i) any shares owned by us, Parent or Merger Sub or any of our direct or indirect wholly owned subsidiaries, or the direct or indirect wholly owned subsidiaries of Parent or Merger Sub (which will be canceled) and (ii) any shares with respect to which appraisal rights have been properly exercised under Delaware law), will be canceled and automatically converted into the right to receive $1.20 in cash, without interest thereon.

Pursuant to the terms and subject to the conditions of the Merger Agreement, effective as of immediately prior to the Effective Time, (i) the vesting of each option to purchase Company Shares (each a Company Option) that remains outstanding and unvested as of immediately prior to the Effective Time shall be accelerated in full, (ii) each Company Option that remains outstanding as of immediately prior to the Effective Time shall be canceled and terminated as of the Effective Time and (iii) the holder of each such Company Option shall be paid an amount in cash (without interest), if any, equal to the product obtained by multiplying (x) the aggregate number of Company Shares underlying such Company Option immediately prior to the Effective Time, by (y) the amount, if any, by which the Merger Consideration exceeds the per share exercise price of such Company Option.

Pursuant to the terms and subject to the conditions of the Merger Agreement, effective as of immediately prior to the Effective Time, (i) the vesting of each award of restricted stock units or performance stock units (each a Company RSU Award) that remains outstanding as of immediately prior to the Effective Time shall be accelerated in full (with any applicable performance criteria being deemed achieved at the maximum possible level of achievement for such performance criteria), (ii) each Company RSU Award that remains outstanding as of immediately prior to the Effective Time shall be canceled and terminated as of the Effective Time and (iii) the holder of each such Company RSU Award shall be entitled to be paid an amount in cash (without interest) equal to the product obtained by multiplying (x) the aggregate number of Company Shares underlying such Company RSU Award immediately prior to the Effective Time, by (y) the Merger Consideration.

The total Merger Consideration represents an equity value of approximately $62.3 million and an enterprise value of approximately $38.4 million, after accounting for the acceleration of equity awards and the Company's net cash of approximately $23.9 million at the end of the second quarter of 2019.

The consummation of the Merger is also subject to the satisfaction (or waiver, if applicable) of various customary conditions, including (i) adoption of the Merger Agreement by the requisite vote of our stockholders, (ii) review and clearance by the Committee on Foreign Investment in the United States, (iii) the absence of any law or governmental order making illegal or prohibiting the Merger, (iv) the accuracy of the representations and warranties of each party contained in the Merger Agreement (subject to certain materiality qualifications), (v) each party's compliance with or performance of the covenants and agreements in the Merger Agreement in all material respects and (vi) other customary closing conditions.

The foregoing description of the Merger Agreement does not purport to be complete and is qualified in its entirety by reference to the Merger Agreement, which was filed as Exhibit 2.1 to our Current Report on Form 8-K filed on May 6, 2019.

See Note 1 of the Notes to Condensed Consolidated Financial Statements included in this Form 10-Q for additional details regarding the Merger.

Basis of Presentation

How We Generate Revenue

Our customer engagement process primarily generates revenue in two ways: program revenue; and licensing and royalty revenue. Programs are our primary engagement model with customers and are structured to result in program fees, and in some cases licensing and/or royalty revenue arrangements.

- *Program revenue.* Program revenue may include service-based fees such as payments for research services, milestone payments, and subscription payments for dedicated and shared workflow tools used in the programs and reimbursed payments for consumables and outside services from third parties. Individual programs typically range from six months up to twelve months. We recognize program revenue in a manner consistent with activities performed. As we engage new customers and negotiate extensions for existing customer agreements that are nearing completion, we expect program revenue to continue to fluctuate.
- *Licensing and royalty revenue.* Licensing and royalty revenue consists of licensing fees and royalties for granting our customers rights to our proprietary technology and intellectual property (IP). This primarily includes licensing fees and royalties on products commercialized by our customers that incorporate technology developed through our programs. In addition, licensing and royalty revenue may include sale of intellectual property when title transfers if there are no remaining performance obligations related to the intellectual property transfer. We anticipate our licensing and royalty revenue to continue to represent a low percentage of overall revenue in the future as we transition to a purely program services model.

Cost of Revenue

Our cost of revenue is variable and depends on the product mix and type of revenue earned in each period relating to our customer programs.

- *Cost of program revenue.* Our cost of program revenue primarily consists of salaries and other personnel-related expenses, including stock-based compensation, for our research and development scientists, engineers and development fab process operations employees. Additionally, our cost of revenue includes costs of wafers, targets, materials, program-related supplies, third-party professional fees and depreciation of equipment used in programs. We include inventory obsolescence and customer related asset impairments in cost of program revenue.
- *Cost of licensing and royalty revenue.* Our cost of licensing and royalty revenue primarily consisted of the amortization of acquired patents, which were acquired as part of our Symyx asset purchase in November 2011, and licensing obligations. The Symyx patents were fully amortized as of September 30, 2018.

Research and Development

Our R&D expenses consist of costs incurred for development and continuous improvement of our HPC platform, expansion of software capabilities and research and development that is not associated with customer programs. R&D costs include personnel-related expenses, including stock-based compensation expenses, for our technical staff as well as consultant costs, parts and prototypes, wafers, chemicals, supply costs, facilities costs, utilities costs related to laboratories and offices occupied by technical staff, depreciation on equipment used by technical staff, long-lived R&D assets impairment, and outside services, such as machining and third-party R&D costs. We recognize R&D overhead costs that are not allocated to a customer program as expenses within R&D.

Sales and Marketing

Our sales and marketing expenses consist primarily of personnel-related costs, including stock-based compensation, for our sales and marketing employees, facility costs and professional expenses. Professional expenses consist of external website, marketing communication consulting costs and market research.

General and Administrative

General and administrative expenses consist primarily of personnel-related costs, including stock-based compensation, as well as professional services and facilities costs related to our executive, finance, legal, human resources, management information systems and information technology functions. Professional services consist of outside accounting, information technology, consulting and legal costs. We also incur significant accounting and legal costs related to compliance with rules and regulations enacted by the Securities and Exchange Commission, as well as insurance, investor relations and other costs associated with being a public company.

Interest income (expense), net

Interest income represents interest earned on our cash, cash equivalents and investments. We expect interest income will vary each reporting period depending on our average investment balances during the period and market interest rates.

Other Income (expense), net

Other income primarily consists of income that we receive from subleasing a portion of our office space under an agreement entered into in December 2015. The term of the lease is for three years and annual gross rent is approximately $0.3 million. The sublease commenced during the second quarter of 2016 and terminated during the first quarter of 2019. Other income (expense), net also includes foreign exchange gains and losses that have not been significant.

Critical Accounting Estimates

Our Condensed Consolidated Financial Statements have been prepared in conformity with generally accepted accounting principles in the United States and include our accounts and the accounts of our wholly-owned subsidiaries. The preparation of our Condensed Consolidated Financial Statements requires our management to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities and disclosures for contingent assets and liabilities as of the date of the financial statements, and the reported amounts of revenue and expenses during the applicable periods. Management bases its estimates, assumptions and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances. Different assumptions and judgments would change the estimates used in the preparation of our Condensed Consolidated Financial Statements which, in turn, could change the results from those reported. Our management evaluates its estimates, assumptions and judgments on an ongoing basis.

There have been no material changes in the matters for which we make critical accounting estimates in the preparation of our Condensed Consolidated Financial Statements during the three months ended March 31, 2019 as compared to those disclosed in our 2018 Form 10-K. For further information on our critical and other significant accounting policies, see our 2018 Form 10-K.

Recent Accounting Pronouncements

See Note 1 of the Notes to Condensed Consolidated Financial Statements included in this Form 10-Q for recent accounting pronouncements that could have an effect on us.

Results of Operations

Comparison of the Three and Six Months Ended June 30, 2019 and 2018

	Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	$ Change	% Change	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018	$ Change	% Change
	(in thousands)				(in thousands)			
Revenue:								
Program revenue	$ 4,485	$ 9,365	$ (4,880)	-52%	$ 10,870	$ 18,621	$ (7,751)	-42%
Licensing and royalty revenue	133	437	(304)	-70%	399	856	(457)	-53%
Total revenue	4,618	9,802	(5,184)	-53%	11,269	19,477	(8,208)	-42%
Cost of revenue:	1,437	2,859	(1,422)	-50%	3,255	6,235	(2,980)	-48%
Gross profit	3,181	6,943	(3,762)	-54%	8,014	13,242	(5,228)	-39%
Operating expenses:								
Research and development	4,216	4,056	160	4%	8,362	8,087	275	3%
Sales and marketing	974	858	116	14%	1,864	1,654	210	13%
General and administrative	3,494	1,748	1,746	100%	5,832	4,034	1,798	45%
Total operating expenses	8,684	6,662	2,022	30%	16,058	13,775	2,283	17%
Income (loss) from operations	(5,503)	281	(5,784)		(8,044)	(533)	(7,511)	
Other income (expense):								
Interest income (expense), net	172	140	32		355	245	110	
Other income (expense), net	(3)	75	(78)		93	162	(69)	
Total other income (expense), net	169	215	(46)		448	407	41	
Income (loss) before provision for income taxes	(5,334)	496	(5,830)		(7,596)	(126)	(7,470)	
Provision for income taxes	—	—	—		-	1	(1)	
Net income (loss)	$ (5,334)	$ 496	$ (5,830)		$ (7,596)	$ (127)	$ (7,469)	

Revenue

Our revenue decreased by 53%, or $5.2 million, during the three months ended June 30, 2019 compared to the three months ended June 30, 2018, with a 70% decrease in licensing and royalty revenue and a 52% decrease in program revenue. The decrease in licensing and royalty revenue was primarily due to lower royalty-related end-market sales from a customer. The decrease in program revenue was primarily due to the scheduled completion of $8.1 million in of existing programs which was partially offset by a $3.2 million increase in revenue from a new customer engagement.

Our revenue decreased by 42% of $ 8.2 million, during the six months ended June 30, 2019 compared to the six months ended June 30, 2018, with a 53% decrease in licensing and royalty revenue and a 42% decrease in program revenue. The decrease in licensing and royalty revenue was primarily due to lower royalty-related end-market sales from a customer. The decrease in program revenue was primarily due to the scheduled completion of $14.5 million in of existing programs which was partially offset by a $6.7 million increase in revenue from a new customer engagement

We expect our revenue to fluctuate from period to period based on demand for, and our resources to fulfill, our services, project completion schedules and end-market sales.

The following table presents revenue by geographic region, based on invoiced locations, during the three and six months ended June 30, 2019 and 2018 in dollars (in thousands) and as a percentage of revenue for the periods presented:

	Three Months Ended June 30,				Six Months Ended June 30,			
	2019		2018		2019		2018	
	Revenues	% of Revenues	Revenues	% of Revenues	Revenues	% of Revenues	Revenues	% of Revenues
United States	$ 3,957	86%	$ 1,785	18%	$ 8,459	75%	$ 3,017	15%
APAC (excluding Japan)	622	14%	8,017	82%	2,771	25%	16,460	85%
Japan	39	—%	—	—%	39	—%	—	—%
Total	$ 4,618	100%	$ 9,802	100%	$ 11,269	100%	$ 19,477	100%

Cost of Revenue

Cost of revenue decreased by 50%, or $1.4 million, during the three months ended June 30, 2019 compared to the three months ended June 30, 2018 primarily due to $0.9 million decreases in labor and personnel-related expenses, $0.3 million decrease in depreciation and $0.2 million decrease in materials and other costs associated with the scheduled completion of existing programs.

Cost of revenue decreased by 48%, or $3.0 million, during the six months ended June 30, 2019 compared to the six months ended June 30, 2018 primarily due to $1.6 million decreases in labor and personnel-related expenses, $0.8 million decrease in depreciation and $0.6 million decrease in materials and other costs associated with the scheduled completion of existing programs.

Gross Margin

Our gross profit as a percentage of revenue, or gross margin, has been and will continue to be affected by a variety of factors, including the mix of program revenue and licensing and royalty revenue recognized during the period. We achieve a higher gross margin on licensing and royalty revenue as compared to program revenue.

Gross margin was 69% and 71% for the three and six months ended June 30, 2019 compared to 71% and 68% for the three and six months ended June 30, 2018.

Research and Development

R&D expenses increased by 4%, or $0.2 million, during the three months ended June 30, 2019 compared to the three months ended June 30, 2018. The increase was primarily attributable to a $0.1 million increase in professional fees, $0.2 million increase in materials cost and $0.2 million increase in facilities cost, which were partially offset by $0.3 million reduction in depreciation expense.

R&D expenses increased by 3%, or $0.3 million, during the six months ended June 30, 2019 compared to the six months ended June 30, 2018. The increase was primarily attributable to a $0.2 million increase in labor and personnel-related expenses, $0.2 million increase in professional fees, $0.3 million increase in materials cost and $0.3 million increase in facilities cost, which were partially offset by $0.6 million reduction in depreciation expense.

Sales and Marketing

Sales and marketing expenses increased by 14%, or $0.1 million, during the three months ended June 30, 2019 compared to the three months ended June 30, 2018. The increase was primarily attributable to a $0.2 million increase in labor and personnel-related expenses, which was partially offset by $0.1 million reduction in professional fees.

Sales and marketing expenses increased by 13%, or $0.2 million, during the six months ended June 30, 2019 compared to the six months ended June 30, 2018. The increase was primarily attributable to a $0.3 million increase in labor and personnel-related expenses and $0.1 million increase in materials cost, which were partially offset by $0.2 million reduction in professional fees.

General and Administrative

General and administrative expenses increased by 100%, or $1.7 million, during the three months ended June 30, 2019 compared to the three months ended June 30, 2018. The increase was primarily attributable to a $1.7 million increase in professional fees related to the Merger.

General and administrative expenses increased by 45%, or $1.8 million, during the six months ended June 30, 2019 compared to the six months ended June 30, 2018. The increase was primarily attributable to a $2.1 million increase in professional fees related to the Merger, which was partially offset by $0.3 million reduction in labor and personnel-related expense.

Income (Loss) from Operations

Our operating loss increased by $5.8 million during the three months ended June 30, 2019 compared to the three months ended June 30, 2018, primarily due to $3.8 million reduction in gross profit on account of lower revenues and $2.0 million increase in operating expenses.

Our operating loss increased by $7.5 million during the six months ended June 30, 2019 compared to the six months ended June 30, 2018, primarily due to $5.2 million reduction in gross profit on account of lower revenues and $2.3 million increase in operating expenses.

Interest Income (Expense), net

The increase in interest income during the three and six months ended June 30, 2019, compared to the three and six months ended June 30, 2018, was primarily related to higher interest rates.

Other Income (Expense), net

Other income, net, for the three and six months ended June 30, 2019 consisted principally of sublease income that we received from subleasing a portion of our office space under an agreement entered into in December 2015. The sublease commenced during the second quarter of 2016 and terminated during the first quarter of 2019.

Provision for Income Taxes

Provision for income taxes during the three and six months ended June 30, 2019 and 2018 consisted of income taxes on our U.S. and foreign entities and were not significant during these periods.

Net Income (Loss)

Our net loss increased by $5.8 million to $5.3 million during the three months ended June 30, 2019 compared to a net income of $0.5 million during the three months ended June 30, 2018, primarily due to $3.8 million reduction in gross profit on account of lower revenues and $2.0 million increase in operating expenses.

Our net loss increased by $7.5 million to $7.6 million during the six months ended June 30, 2019 compared to a net loss of $0.1 million during the six months ended June 30, 2018, primarily due to $5.2 million reduction in gross profit on account of lower revenues and $2.3 million increase in operating expenses.

Liquidity and Capital Resources

As of June 30, 2019, we had $23.9 million of cash, cash equivalents and investments and $21.2 million of net working capital.

During the six months ended June 30, 2019, we incurred net losses of $7.6 million compared to a net loss of $0.1 million in the same period last year. As of June 30, 2019, our accumulated deficit was $189.3 million.

We believe that we have the financial resources needed to meet business requirements for the next 12 months. However, our forecast of the period of time through which our financial resources will be adequate to meet business requirements are forward-looking statements and involve risks and uncertainties. Our future capital requirements will depend on many factors, many of which are set forth in greater detail under the caption "Risk Factors," but generally include without limitation our rate of revenue growth, our expansion of our sales and marketing activities and overhead expenses; the timing and extent of our spending to support our R&D efforts; our ability to expand customer programs in the semiconductor industry; whether we are successful in obtaining payments from customers; the financial stability of our customers; whether we can enter into additional contracts in our target industries; the progress and scope of collaborative R&D projects performed by us and our customers; the effect of any acquisitions of other businesses or technologies that we may make in the future; the filing, prosecution and enforcement of patent claims; how much we need to develop or enhance our solutions or HPC platform and any necessary responses to competitive pressures. To the extent that existing cash, cash equivalents, investments and cash from operations are insufficient to fund our operations, we may need to raise additional funds through public or private equity or debt financing. We may also seek to invest in or acquire complementary businesses, applications or technologies, any of which could also require us to seek additional equity or debt financing. Additional funds may not be available on terms favorable to us or at all. We maintain almost all of our cash and investments in the United States and therefore are not generally subject to restrictions or tax obligations as we access the cash.

Cash Flows

	Six Months Ended June 30,	
	2019	2018
Net cash (used in) provided by operating activities	$ (6,020)	$ 5,931
Net cash used in investing activities	$ (176)	$ (7,846)
Net cash provided by financing activities	$ 5	$ 172

Cash Flows from Operating Activities

We experienced negative cash flows from operating activities during the six months ended June 30, 2019 primarily due to operating results.

Net cash of $6.0 million used in operating activities during the six months ended June 30, 2019 was primarily attributable to $7.6 million in net loss, $1.6 million reduction in accrued liabilities, $0.5 million reduction in accounts payable and $0.8 million reduction in deferred revenue, which were offset by non-cash charges of $1.9 million of depreciation, amortization and accretion, a $0.9 million of stock compensation expense and $1.4 million reduction in accounts receivables and $0.3 million decrease in materials inventory.

Net cash provided by operating activities during the six months ended June 30, 2018 was primarily attributable to the non-cash charges of $2.7 million for depreciation, amortization, and accretion, $0.5 million for stock-based compensation, and a $4.1 million reduction in accounts receivables, offset by our net loss of $0.1 million, $0.6 million reduction in deferred revenue, and $0.8 million reduction in accounts payable.

We expect that cash flows from operating activities will fluctuate in future periods due to a number of factors, including our operating results, amounts of non-cash charges, the timing of our billings, collections and disbursements.

Cash Flows from Investing Activities

Our investing activities consist primarily of purchases and maturities of short-term investments, capital expenditures to purchase property and equipment and the sale of intangible assets. In the future, we expect to continue making certain capital expenditures to support our operations, and to incur costs to protect our investment in our developed technology and IP.

During the six months ended June 30, 2019, cash used by investing activities was $0.2 million as a result of $0.6 million in purchases of property, plant and equipment offset by $0.4 million received in the net redemption of our investments.

During the six months ended June 30, 2018, cash used by investing activities was $7.8 million as a result of $7.3 million in net purchases of investments, and a $0.5 million in purchases of property, plant and equipment.

Cash Flows from Financing Activities

To date, we have financed our operations primarily with proceeds from the sale of our redeemable convertible preferred stock and proceeds received from our initial public offering.

During the six months ended June 30, 2019, cash provided by financing activities was $5,000, compared to $0.2 million for the six months ended June 30, 2018, which was from the proceeds of common stock option exercises.

Contractual Obligations and Commitments

The following summarizes our contractual obligations as of June 30, 2019 (in thousands):

	Payments Due by Period				
	Total	Less Than One Year	1 - 3 Years	3 - 5 Years	More Than 5 Years
Operating lease obligations	$ 16,358	$ 2,592	$ 5,314	$ 5,565	$ 2,887
Purchase obligations	801	801	—	—	—
Total	$ 17,159	$ 3,393	$ 5,314	$ 5,565	$ 2,887

Operating lease agreements represent our obligations to make payments under our non-cancelable lease agreement for our facility in San Jose, California and office equipment. During the six months ended June 30, 2019, we made regular lease payments of $1.3 million under our operating lease agreements. Purchase obligations consist of firm, non-cancelable agreements to purchase property and equipment and inventory items.

Off-Balance Sheet Arrangements

As of June 30, 2019, we did not have any relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which are established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are a “smaller reporting company” as defined by Regulation S-K and as such, are not required to provide the information contained in this item pursuant to Regulation S-K.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures, as such term is defined in Rule 13a-15(e) promulgated under the Securities Exchange Act of 1934, as amended, as of June 30, 2019.

The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), means controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms and (ii) accumulated and communicated to our management, including the Chief Executive Officer and Chief Financial Officer, as the principal executive and financial officers, respectively, to allow timely decisions regarding required disclosures.

Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report.

Changes in internal control over financial reporting

We made no changes to our internal control over financial reporting during the quarterly period ended June 30, 2019 that has materially affected, or that is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and our Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of internal control will be met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of the controls must be considered relative to their costs. While our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of their effectiveness, 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, will be detected. These inherent limitations include the realities that judgments in decision making can be faulty and that breakdowns can occur because of simple errors or mistakes. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of the controls. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and may not be detected. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

PART II — OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

On June 6, 2019, a putative shareholder class action complaint was filed in the United States District Court for the District of Delaware against us and each member of our board of directors, captioned *Franchi v. Intermolecular, Inc. et al.*, C.A. No. 1:19-cv-01054. On June 11, 2019, two additional complaints were filed in the United States District Court for the Southern District of New York and the Northern District of California, respectively, against us and each member of our board of directors, captioned *Najafi v. Intermolecular, Inc. et al.*, C.A. No. 1:19-cv-05438 and *Stein v. Intermolecular, Inc. et al.*, C.A. No. 5:19-cv-03307. On June 12, 2019, a second putative shareholder class action complaint was filed in the United States District Court for the Southern District of New York against us and each member of our board, captioned *Morgan v. Intermolecular, Inc. et al.*, C.A. No. 1:19-cv-05489. On June 13, 2019, an additional complaint was filed in the United States District Court for the Northern District of California against us and each member of our board, captioned *Bedeian v. Intermolecular, Inc. et al.*, C.A. No. 3:19-cv-03359. Each of the complaints alleges, among other things, that we and each member of our board violated certain provisions of the federal securities laws and regulations by soliciting stockholder votes in connection with the Merger through a proxy statement that purportedly omits material information necessary to make the statements therein not false or misleading. The complaints seek, among other things, to require us to disseminate a proxy statement that does not contain any untrue statements of material fact and that states all material facts required to make the statements contained therein not misleading, damages, and certain other equitable and injunctive relief. On July 9, 2019, the court in the Najafi action ordered the case closed having been notified by plaintiff’s counsel that the action is now moot.

We believe the complaints are without merit, and we will vigorously defend against the complaints. However, litigation is inherently uncertain and there can be no assurance regarding the likelihood that our defense of the actions will be successful.

In addition to the foregoing, from time to time, we may become involved in legal proceedings and claims arising in the ordinary course of our business, including but not limited to legal proceedings and claims brought by employees or former employees relating to working conditions or other issue, which we do not believe individually or in the aggregate would be material to our business and results of operations.

ITEM 1A. RISK FACTORS

In addition to the risk factors set forth below and other information contained elsewhere in this Quarterly Report on Form 10-Q, you should carefully consider how the risk factors discussed in Part I, Item 1A, "Risk Factors," in our Annual Report on Form 10-K for the year ended December 31, 2018, could materially and adversely affect our business, financial condition or future results. These risk factors and the risk factors set forth below are not the only risks facing our company. Risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and operating results. The Risk factors listed below should be read in conjunction with the Risk Factor section in our 2018 Annual Report on Form 10-K.

Risks Related to the Proposed Merger

On May 6, 2019, we entered into an Agreement and Plan of Merger (the Merger Agreement) with EMD Group Holding II, Inc., a Delaware corporation (Parent) and EMD Performance Materials Semiconductor Services Corp., a Delaware corporation and a wholly owned subsidiary of Parent (Merger Sub), providing for the merger of Merger Sub with and into the Intermolecular, Inc. (the Merger), with Intermolecular, Inc. surviving the Merger as a wholly owned subsidiary of Parent. The Merger Agreement was unanimously approved by our board of directors. The description of the Merger Agreement in these Risk Factors does not purport to be complete and is qualified in its entirety by reference to the Merger Agreement, which was filed as Exhibit 2.1 to our Current Report on Form 8-K filed on May 6, 2019.

We may fail to consummate the Merger, and uncertainties related to the consummation of the Merger may have a material adverse effect on our business, results of operations and financial condition and negatively impact the price of our common stock.

The Merger is subject to the satisfaction of a number of conditions beyond our control, including receiving stockholder approval, review and clearance by the Committee on Foreign Investment in the United States and other customary closing conditions. Failure to satisfy the conditions to the Merger could prevent or delay the completion of the Merger. Further, regulators may impose conditions, obligations or restrictions on the Merger that may have the effect of delaying or preventing its completion.

The efforts and costs to satisfy the closing conditions of the Merger, may place a significant burden on management and internal resources, and the Merger and related transactions, whether or not consummated, may result in a diversion of management's attention from day-to-day operations. Any significant diversion of management's attention away from ongoing business and difficulties encountered in the Merger process could have a material adverse effect on our business, results of operations and financial condition.

There also is no assurance that the Merger and the other transactions contemplated by the Merger Agreement will occur on the terms and timeline currently contemplated or at all.

If the proposed Merger is not completed or the Merger Agreement is terminated, the price of our common stock may decline, including to the extent that the current market price of our common stock reflects an assumption that the Merger and the other transactions contemplated by the Merger Agreement will be consummated without further delays, which could have a material adverse effect on our business, results of operations and financial condition.

If the Merger Agreement is terminated and we determine to seek another business combination, we may not be able to negotiate a transaction with another party on terms comparable to, or better than, the terms of the Merger.

If the Merger Agreement is terminated, we may, under certain circumstances, be obligated to pay a termination fee to Parent. These costs could require us to use available cash that would have otherwise been available for other uses.

If the Merger is not completed, in certain circumstances, we could be required to pay a termination fee of $2.3 million to Parent. If the Merger Agreement is terminated, the termination fee we may be required to pay, if any, under the Merger Agreement may require us to use available cash that would have otherwise been available for general corporate purposes or other uses. For these and other reasons, termination of the Merger Agreement could materially and adversely affect our business, results of operations or financial condition, which in turn would materially and adversely affect the price of our common stock.

We are subject to various uncertainties and restrictions on the conduct of our business while the Merger is pending, which could have a material adverse effect on our business, results of operations and financial condition.

Uncertainty about the pendency of the Merger and the effect of the Merger on employees, customers, vendors, communities and other third parties who deal with us may have a material adverse effect on our business, results of operations and financial condition. These uncertainties may impair our ability to attract, retain and motivate key personnel pending the consummation of the Merger, as such personnel may experience uncertainty about their future roles following the consummation of the Merger. Additionally, these uncertainties could cause customers, distributors, vendors and other third parties who deal with us to seek to change existing business relationships with us or fail to extend an existing relationship with us, all of which could have a material adverse effect on our business, results of operations, financial condition and market price of our common stock. In addition, the Merger Agreement restricts us from taking certain actions without Parent’s consent while the Merger is pending. These restrictions may, among other matters, prevent us from pursuing otherwise attractive business opportunities, buying or selling certain assets, making certain capital expenditures, refinancing or incurring additional indebtedness in an amount exceeding $500,000, entering into certain transactions, or making other changes to our business prior to consummation of the Merger or termination of the Merger Agreement. These restrictions and uncertainties could have a material adverse effect on our business, results of operations and financial condition.

We and our directors and officers may be subject to lawsuits relating to the Merger.

Litigation is very common in connection with the sale of public companies, regardless of whether the claims have any merit. One of the conditions to consummating the Merger is that no order preventing or otherwise prohibiting the consummation of the Merger shall have been issued by any court. Consequently, if any lawsuit challenging the Merger, including any of the pending complaints against us, is successful in obtaining an order preventing the consummation of the Merger, that order may delay or prevent the Merger from being completed. While we will evaluate and defend against any lawsuits, the time and costs of defending against litigation relating to the Merger, including the pending complaints, may adversely affect our business.

We will continue to incur substantial transaction-related costs in connection with the Merger.

We have incurred significant legal, advisory and financial services fees in connection with Merger. We have incurred, and expect to continue to incur, additional costs in connection with the satisfaction of the various conditions to closing of the Merger, including seeking approval from our stockholders and from applicable regulatory agencies. If there is any delay in the consummation of the Merger, these costs could increase significantly.

ITEM 6. EXHIBITS

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Date	Number	
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. §1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				X
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.				X
101.INS	XBRL Instance Document				X
101.SCH	XBRL Taxonomy Extension Schema Document				X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document				X

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.

INTERMOLECULAR, INC.
(Registrant)

Date: August 8, 2019

By: /s/ Bill Roeschlein
Bill Roeschlein
Chief Financial Officer

Exhibit 31.1

Certification of Chief Executive Officer

Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Christian F. Kramer, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: August 8, 2019

/s/ CHRISTIAN KRAMER
Christian F. Kramer
President and Chief Executive Officer

Exhibit 31.2

Certification of Chief Financial Officer

Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Bill Roeschlein, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: August 8, 2019

/s/ Bill Roeschlein.

Bill Roeschlein

Chief Financial Officer

Exhibit 32.1

Certification of Chief Executive Officer

Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906

of the Sarbanes-Oxley Act of 2002

In connection with the Quarterly Report of Intermolecular, Inc. (the "Company") on Form 10-Q for the six months ended June 30, 2019, as filed with the Securities and Exchange Commission (the "Report"), Christian F. Kramer, President and Chief Executive Officer of the Company, does hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 8, 2019

By: /s/ CHRISTIAN F. KRAMER
Name: Christian F. Kramer
Title: *President and Chief Executive Officer*

A signed original of this written statement required by Rule 13a-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933 or the Securities Exchange Act of 1934 (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.

Exhibit 32.2

Certification of Chief Financial Officer

Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906

of the Sarbanes-Oxley Act of 2002

In connection with the Quarterly Report of Intermolecular, Inc. (the "Company") on Form 10-Q for the six months ended June 30, 2019, as filed with the Securities and Exchange Commission (the "Report"), Bill Roeschlein, Chief Financial Officer of the Company, does hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 8, 2019

By: /s/ Bill Roeschlein
Name: Bill Roeschlein
Title: *Chief Financial Officer*

A signed original of this written statement required by Rule 13a-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933 or the Securities Exchange Act of 1934 (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.