



DIVISION OF
CORPORATION FINANCE

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

September 22, 2011

Via E-mail

David Lazovsky
President and Chief Executive Officer
Intermolecular, Inc.
3011 N. First Street
San Jose, CA 95134

**Re: Intermolecular, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed September 9, 2011
File No. 333-175877**

Dear Mr. Lazovsky:

We have reviewed your registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Prospectus Summary, page 1

1. We note your response to prior comment 1. Please tell us which of the customers identified in the summary represent 10% or more of your revenue and which customers represent 10% or more of your accounts receivable. Tell us how you determined it is appropriate to group these customers together in the summary given the difference between the amounts of your revenues and accounts receivable.

Management's Discussion and Analysis

Cost of Revenue, pages 54 and 57

2. We refer to your response to comment 19 and your revision on page 51. Please include a discussion of the reasons for any significant changes in the cost of revenue as a percentage of revenues.

Business, page 74

3. Please revise your disclosure to include the substance of your response to prior comment 24.

Certain Relationships, page 125

4. We note your response to prior comment 30. Please provide us with the exhibits, schedules and similar attachments identified in note (1) on page II-5.

Consolidated Financial Statements

Note 1. The Company and Summary of Significant Accounting Policies

Unaudited Pro Forma Stockholders' Equity, page F-8, and Unaudited Pro Forma Net Loss per Share of Common Stock, page F-16

5. Further to your response to prior comment 35, please disclose, consistent with your response, why you reflected the pro forma adjustment.

Revenue recognition, page F-9

6. Please tell us in more detail about your revenue recognition policy for collaborative development programs and other services and how you record revenues based on a time and material basis. Discuss how you consider certain customer contracts which require the company to maintain dedicated equipment to support contractual capacity requirements as part of their collaborative development programs. For those contracts, discuss how you determine the accounting for the related minimum payments associated with the dedicated equipment and the amount of revenue allocated to this element of the contract.

Note 9. Net Loss per Share of Common Stock, page F-31

7. Further to your response to prior comment 37, please explain further why you believe it is probable that the warrants that will be cancelled if they are not exercised in connection with an initial public offering will in fact be exercised. That is, where exercise is not in the control of the company, please explain your basis for assuming exercise. Further, please disclose, consistent with your response, your basis for reflecting the pro forma adjustments.
8. Also, your response states that the company intends to deliver a notice to the holders of such warrants in accordance with the terms of such warrant that the company is opting to require the warrants to be exercised in connection with the offering. Please clarify why

you used the word 'intends' as opposed to stating that the company will deliver the notice. Discuss why there is some uncertainty.

9. Further, with respect to the preferred stock warrant, while we note from your response that you have contacted the holder of such warrant and are currently in the process of making arrangements for such holder to exercise the warrant effective upon the closing of the offering, please tell us why you reflected this as a pro forma adjustment in the absence of a definitive agreement.

Note 10. Income Taxes, page F-32

10. Please update your disclosure for the six month period ended June 30, 2011.

Note 13. Subsequent Events, page F-36

11. Further to your response to prior comment 39, please explain further the nature of the contingent terms of your agreement with Symyx and how you evaluated the contingency in determining your accounting. We note from your response that your ownership of the right to the patents is contingent upon an IPO. We also note that you plan to record the asset upon assumption of the liability and, should the prospects of an IPO become unlikely, you will write off the asset as valueless.
12. Please also address your consideration of the termination of the company's future royalty obligations under an existing license agreement to the extent they would have accrued after December 31, 2011.
13. Also, please tell us the number of shares held by Symyx Technologies, Inc. that are subject to the guarantee.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;

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- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Dennis Hult at (202) 551-3618 or Kaitlin Tillan at (202) 551-3604 if you have questions regarding comments on the financial statements and related matters. Please contact Louis Rambo at (202) 551-3289 or Tim Buchmiller, reviewing attorney, at (202) 551-3635 with any other questions.

Sincerely,

/s/ Tim Buchmiller for

Amanda Ravitz
Assistant Director

cc (via e-mail): Patrick A. Pohlen, Esq.
Latham & Watkins LLP