

Mail Stop 6010

October 15, 2007

Gail S. Page
President and Chief Executive Officer
Vermillion, Inc.
6611 Dumbarton Circle
Fremont, California 94555

**Re: Vermillion, Inc.
Registration Statement on Form S-1
Filed September 27, 2007
File No. 333-146354**

Dear Ms. Page:

We have limited our review of your filing to those issues we have addressed in our comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. Given the nature and size of the transactions being registered, together with the nature and size of the transactions registered in your registration statement on Form S-3 (file no. 333-139416) involving an identical selling stockholder, please advise the staff of the company's basis for determining that the transactions are appropriately characterized as transactions that are eligible to be made on a shelf basis under Securities Act Rule 415(a)(1)(i).

2. Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure of all prior securities transactions between the issuer (or any of its predecessors) and the selling stockholders, any affiliates of the selling stockholders, or any person with whom any selling stockholder has a contractual relationship regarding the transaction (or any predecessors of those persons), with the table including the following information disclosed separately for each transaction:

- the date of the transaction;
- the number of shares of the class of securities subject to the transaction that were outstanding prior to the transaction;
- the number of shares of the class of securities subject to the transaction that were outstanding prior to the transaction and held by persons other than the selling stockholders, affiliates of the company, or affiliates of the selling stockholders;
- the number of shares of the class of securities subject to the transaction that were issued or issuable in connection with the transaction;
- the percentage of total issued and outstanding securities that were issued or issuable in the transaction (assuming full issuance), with the percentage calculated by taking the number of shares issued and outstanding prior to the applicable transaction and held by persons other than the selling stockholders, affiliates of the company, or affiliates of the selling stockholders, and dividing that number into the number of shares issued or issuable in connection with the applicable transaction;
- the market price per share of the class of securities subject to the transaction immediately prior to the transaction (split adjusted, if necessary); and
- the current market price per share of the class of securities subject to the transaction (split adjusted, if necessary).

3. Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure comparing:

- the number of shares outstanding prior to the issuance of the shares of common stock in the August 2007 transaction that were held by persons other than the selling stockholders, affiliates of the company, and affiliates of the selling stockholders;

- the number of shares registered for resale by the selling stockholders or affiliates of the selling stockholders in prior registration statements;
- the number of shares registered for resale by the selling stockholders or affiliates of the selling stockholders that continue to be held by the selling stockholders or affiliates of the selling stockholders;
- the number of shares that have been sold in registered resale transactions by the selling stockholders or affiliates of the selling stockholders; and
- the number of shares registered for resale on behalf of the selling stockholders or affiliates of the selling stockholders in the current transaction.

In this analysis, the calculation of the number of outstanding shares should not include any securities underlying any outstanding convertible securities, options, or warrants.

4. Please provide us, with a view toward disclosure in the prospectus, with:
 - a materially complete description of the relationships and arrangements that have existed in the past three years or are to be performed in the future between the issuer (or any of its predecessors) and the selling stockholders, any affiliates of the selling stockholders, or any person with whom any selling stockholder has a contractual relationship regarding the transaction (or any predecessors of those persons); and
 - copies of all agreements between the issuer (or any of its predecessors) and the selling stockholders, any affiliates of the selling stockholders, or any person with whom any selling stockholder has a contractual relationship regarding the transaction (or any predecessors of those persons) in connection with the sale of the shares of common stock registered for resale in the registration statement or overlying such shares of common stock.

If it is your view that such a description of the relationships and arrangements between and among those parties already is presented in the prospectus and that all agreements between and/or among those parties are included as exhibits to the registration statement, please provide us with confirmation of your view in this regard.

5. Please note that all outstanding comments, including those in our comment letter dated September 24, 2007, should be resolved before you request acceleration of the registration statement.

Form 10-K for the Fiscal Year Ended December 31, 2006

Consolidated Financial Statements, page 42

Note 11. Long-term Debt and Capital Leases, page 62

6. Please refer to prior comment 2. With respect to the conversion feature, please tell us and disclose the significant terms under which the conversion rate may be adjusted, including the “make-whole” premium.” Explain how the conversion rate may be adjusted based upon the timing of the change in control and how it is “determined by a formula that references the Company’s share price over time.” Describe how the feature contains an explicit limit on the number of shares to be delivered as noted in your response.
7. Further, please disclose, similar to your response the nature and accounting for the compound embedded derivative for the guaranteed interest payment and the written put option of the debt. Include a discussion of the valuation of the derivative at inception and as of December 31, 2006.
8. Also, please disclose the significant terms of and accounting for registration rights as discussed in your response.

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As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

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 all information required under the Securities Act of 1933 and that they have provided all information investors require for an informed investment decision. 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 the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, 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;
- 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filing or in response to our comments on your filing.

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. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Tim Buchmiller at (202) 551-3635 or me at (202) 551-3444 with any other questions.

Sincerely,

Perry Hindin
Special Counsel

cc: Robert Claassen, Esq. (via fax)