

Mail Stop 6010

April 16, 2007

Mr. Alan Kessman  
Chief Executive Officer  
Vion Pharmaceuticals, Inc.  
4 Science Park  
New Haven, Connecticut 06511

**Re: Vion Pharmaceuticals, Inc.  
Registration Statement on Form S-3  
Filed on April 3, 2007  
File Number 333-141849**

Dear Mr. Kessman:

Each of our comments requests that you revise your filing to provide additional disclosure about the selling security holders or the transaction or transactions in which they purchased the registrant's securities. We will consider your supplemental explanation if you believe a comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation.

Dollar value of underlying securities

1. Please provide the total dollar value of the securities underlying the convertible note that you have registered for resale (using the number of underlying securities that you have registered for resale and the market price per share for those securities on the date of the sale of the convertible note).

Payments to the investor and affiliates

2. Please provide tabular disclosure of the dollar amount of each payment (including the value of any payments to be made in common stock) in connection with the transaction that you have made or may be required to make to any selling security holder, any affiliate of a selling security holder, or any person with whom any selling security holder has a contractual relationship regarding the transaction (including any interest payments, liquidated damages, payments made to "finders" or "placement agents," and any other payments or potential payments). Please provide footnote disclosure of the terms of each

such payment. Please do not include any repayment of principal on the convertible notes in this disclosure.

Further, please provide disclosure of the net proceeds to the issuer from the sale of the convertible notes and the total possible payments to all selling security holders and any of their affiliates in the first year following the sale of convertible notes.

Potential profits on conversion

3. Please provide tabular disclosure of:

- the total possible profit the selling security holders could realize as a result of the conversion discount for the securities underlying the convertible note, presented in a table with the following information disclosed separately:
  - the market price per share of the securities underlying the convertible note on the date of the sale of the convertible note;
  - the conversion price per share of the underlying securities on the date of the sale of the convertible note, calculated as follows:
    - if the conversion price per share is set at a fixed price, use the price per share established in the convertible note; and
    - if the conversion price per share is not set at a fixed price and, instead, is set at a floating rate in relationship to the market price of the underlying security, use the conversion discount rate and the market rate per share on the date of the sale of the convertible note and determine the conversion price per share as of that date;
- the total possible shares underlying the convertible note (assuming no interest payments and complete conversion throughout the term of the note);
- the combined market price of the total number of shares underlying the convertible note, calculated by using the market price per share on the date of the sale of the convertible note and the total possible shares underlying the convertible note;
- the total possible shares the selling security holders may receive and the combined conversion price of the total number of shares underlying the convertible note calculated by using the conversion price on the date of the sale of the convertible note and the total possible number of shares the selling security holders may receive; and
- the total possible discount to the market price as of the date of the sale of the convertible note, calculated by subtracting the total conversion price on the date of

the sale of the convertible note from the combined market price of the total number of shares underlying the convertible note on that date.

If there are provisions in the convertible note that could result in a change in the price per share upon the occurrence of certain events, please provide additional tabular disclosure as appropriate. For example, if the conversion price per share is fixed unless and until the market price falls below a stated price, at which point the conversion price per share drops to a lower price, please provide additional disclosure.

Total potential profit from other securities

4. Please provide tabular disclosure of:

- the total possible profit to be realized as a result of any conversion discounts for securities underlying any other warrants, options, notes, or other securities of the issuer that are held by the selling security holders or any affiliates of the selling security holders, presented in a table with the following information disclosed separately:
  - market price per share of the underlying securities on the date of the sale of that other security;
  - the conversion/exercise price per share as of the date of the sale of that other security, calculated as follows:
    - if the conversion/exercise price per share is set at a fixed price, use the price per share on the date of the sale of that other security; and
    - if the conversion/exercise price per share is not set at a fixed price and, instead, is set at a floating rate in relationship to the market price of the underlying security, use the conversion/exercise discount rate and the market rate per share on the date of the sale of that other security and determine the conversion price per share as of that date;
  - the total possible shares to be received under the particular securities (assuming complete conversion/exercise);
  - the combined market price of the total number of underlying shares, calculated by using the market price per share on the date of the sale of that other security and the total possible shares to be received;
  - the total possible shares to be received and the combined conversion price of the total number of shares underlying that other security calculated by using the conversion price on the date of the sale of that other security and the total possible number of underlying shares; and

- the total possible discount to the market price as of the date of the sale of that other security, calculated by subtracting the total conversion/exercise price on the date of the sale of that other security from the combined market price of the total number of underlying shares on that date.

Comparison of issuer proceeds to potential investor profit

5. Please provide tabular disclosure of:

- the gross proceeds paid or payable to the issuer in the convertible note transaction;
- all payments that have been made or that may be required to be made by the issuer that are disclosed in response to Comment 2;
- the resulting net proceeds to the issuer; and
- the combined total possible profit to be realized as a result of any conversion discounts regarding the securities underlying the convertible notes and any other warrants, options, notes, or other securities of the issuer that are held by the selling security holders or any affiliates of the selling security holders that is disclosed in response to Comments 3 and 4.

Further, please provide – as a percentage – of the total amount of all possible payments as disclosed in response to Comment 2 and the total possible discount to the market price of the shares underlying the convertible note as disclosed in response to Comment 3 divided by the net proceeds to the issuer from the sale of the convertible notes, as well as the amount of that resulting percentage averaged over the term of the convertible notes.

Prior transactions between the issuer and the selling security holders

6. Please provide tabular disclosure of all prior securities transactions between the issuer (or any of its predecessors) and the selling security holders, any affiliates of the selling security holders, or any person with whom any selling security holder 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 security holders, affiliates of the company, or affiliates of the selling security holders;
- 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 security holders, affiliates of the company, or affiliates of the selling security holders, and dividing that number by 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 (reverse split adjusted, if necessary); and
- the current market price per share of the class of securities subject to the transaction (reverse split adjusted, if necessary).

Comparison of registered shares to outstanding shares

7. Please provide tabular disclosure comparing:

- the number of shares outstanding prior to the convertible note transaction that are held by persons other than the selling security holders, affiliates of the company, and affiliates of the selling security holders;
- the number of shares registered for resale by the selling security holders or affiliates of the selling security holders in prior registration statements;
- the number of shares registered for resale by the selling security holders or affiliates of the selling security holders that continue to be held by the selling security holders or affiliates of the selling security holders;
- the number of shares that have been sold in registered resale transactions by the selling security holders or affiliates of the selling security holders; and
- the number of shares registered for resale on behalf of the selling security holders or affiliates of the selling security holders 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.

The issuer's intention and ability to make all note payments and the presence or absence of short selling by the selling security holders

8. Please provide the following information:

- whether the issuer has the intention, and a reasonable basis to believe that it will have the financial ability, to make all payments on the overlying securities; and
- whether – based on information obtained from the selling security holders – any of the selling security holders have an existing short position in the company's common stock and, if any of the selling security holders have an existing short position in the company's stock, the following additional information:
  - the date on which each such selling security holder entered into that short position; and
  - the relationship of the date on which each such selling security holder entered into that short position to the date of the announcement of the convertible note transaction and the filing of the registration statement (e.g., before or after the announcement of the convertible note transaction, before the filing or after the filing of the registration statement, etc.).

Relationships between the issuer and selling security holders

9. Please provide:

- 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 security holders, any affiliates of the selling security holders, or any person with whom any selling security holder has a contractual relationship regarding the transaction (or any predecessors of those persons) – the information provided should include, in reasonable detail, a complete description of the rights and obligations of the parties in connection with the sale of the convertible notes; and
- copies of all agreements between the issuer (or any of its predecessors) and the selling security holders, any affiliates of the selling security holders, or any person with whom any selling security holder has a contractual relationship regarding the transaction (or any predecessors of those persons) in connection with the sale of the convertible notes.

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.

The method by which the number of registered shares was determined

10. Please provide a description of the method by which the company determined the number of shares it seeks to register in connection with this registration statement. In this regard, please ensure that the number of shares registered in the fee table is consistent with the shares listed in the "Selling Security Holders" section of the prospectus.

Information regarding institutional selling security holders

11. With respect to the shares to be offered for resale by each selling security holder that is a legal entity, please disclose the natural person or persons who exercise the sole or shared voting and/or dispositive powers with respect to the shares to be offered by that security holder.

Outstanding Confidential Treatment Request

12. In relation to outstanding confidential treatment requests of the company, we will act upon any request for acceleration of the effective date of the registration statement and, pursuant to delegated authority, grant acceleration of the effective date, only once you have complied with our comments on these confidential treatment requests,. Our comments on the confidential treatment requests, if any, will be provided in a separate letter.

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 filings reviewed by the staff to be certain that they have provided all information investors require for an informed 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:

Mr. Alan Kessman  
Vion Pharmaceuticals, Inc.  
April 16, 2007  
Page 8

- 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 this action 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 a 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.

Please contact Sonia Barros at (202) 551-3655 or Michael Reedich at (202) 551-3612 with any questions.

Sincerely,

Jeffrey P. Riedler  
Assistant Director

cc: Paul Jacobs, Esq.  
Lawrence A. Spector, Esq.  
Fulbright & Jaworski L.L.P.  
666 Fifth Avenue  
New York, New York 10103