

Mail Stop 6010

May 29, 2007

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

**Re: Vion Pharmaceuticals, Inc.  
Amendment No. 1 to Registration Statement on Form S-3  
Filed on May 14, 2007  
File Number 333-141849**

Dear Mr. Kessman:

We have reviewed your filing and have the following 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.

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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Selling Securityholders, page 68

1. It appears that the total amount of notes beneficially owned by the selling securityholders that you have listed adds up to \$63,000,000, which exceeds the amount of notes related to this offering by \$3,000,000. It also appears that the number of shares of common stock issuable upon conversion of the notes for the selling securityholders that you have listed adds up to 32,812,479, which exceeds the amount being registered for resale by 1,562,499. Please review the numbers presented in this table. The totals in this table should be consistent with the total amount of notes and securities being registered for resale.

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Relationships between the issuer and selling security holders

2. We note your response to our prior comment 9 and we are not in receipt of the Purchase Agreement dated February 13, 2006 by and between CRT and the company. Please provide us a copy of this agreement.

As appropriate, please amend your filing 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 supplemental 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 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.

Please contact Sonia Barros at (202) 551-3655 or Suzanne Hayes at (202) 551-3675 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