

Via Facsimile and U.S. Mail  
Mail Stop 4720

December 8, 2009

Paul H. Fischer, Ph.D.  
President and Chief Executive Officer  
GenVec, Inc.  
65 West Watkins Mill Road  
Gaithersburg, MD 20878

**Re: GenVec, Inc.**  
**Form 10-K for the Fiscal Year Ended December 31, 2008**  
**Filed March 16, 2009**  
**File Number 000-24469**

**Definitive Proxy Statement**  
**Filed April 30, 2009**

Dear Dr. Fischer:

We have reviewed your filings and have the following comments. In our comments, we ask you to provide us with information to better understand your disclosure. Where it requests you to revise disclosure, the information you provide should show us what the revised disclosure will look like and identify the annual or quarterly filing, as applicable, in which you intend to first include it. If you do not believe that revised disclosure is necessary, explain the reason in your response. After reviewing the information provided, we may raise additional comments and/or request that you amend your filing.

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.

Form 10-K

Item 1. Business

Intellectual Property, Page 9

1. We note your disclosure that you have secured licenses to applicable genes for purposes of creating your product candidates. Please identify each of your material license agreements, the parties to the license agreements, and any products dependent on each material license. In addition, please describe the material terms of each license agreement including payments made to date, range of royalty percentage, aggregate milestone payments, and duration and termination provisions.

Please also file your material license agreements as exhibits to your filing.

Definitive Proxy Statement

Compensation Discussion and Analysis, page 14

Components of Executive Compensation, page 15

2. We note that the annual performance award granted to NEOs is based on key corporate goals and each executive's individual performance. However, it is unclear from your disclosure how the level of achievement with regard to objectives results in the threshold, target, and maximum payments disclosed in your Grants of Plan Based Awards Table at page 21. Please provide us with an example of proposed disclosure to be included in your 2010 proxy statement which includes the following:
  - The respective weightings of each individual corporate objective, as applicable; and
  - A discussion of how the level of achievement of each objective determines the payment levels identified in your Grants of Plan Based Awards Table.

Please also confirm that you will discuss the level of achievement with regard to each corporate objective and the specific individual performance considered in determining the annual performance award.

\* \* \* \*

Please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter that keys your responses to our comments and provide any requested information. Detailed letters greatly facilitate our review. Please file your letter on EDGAR under the form type label CORRESP.

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 Exchange Act of 1934 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.

In connection with responding to our comments, please provide, in your letter, a statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments 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 our review of your filing or in response to our comment on your filing.

Please contact Bryan Pitko at (202) 551-3203 with any questions. In this regard, please feel free to contact Suzanne Hayes at (202) 551-3675 or me at (202) 551-3715.

Sincerely,

Jeffrey Riedler  
Assistant Director