

Via Facsimile and U.S. Mail
Mail Stop 4720

January 29, 2010

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 supplemental response dated January 15, 2010 to our comment letter dated December 8, 2009 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 response to Comment 1 and your proposed disclosure describing the three license agreements you plan to file with your 2010 Form 10-K. Please revise your proposed disclosure to disclose the latest expiring patent under each license agreement. In addition, for the Cornell agreement, please disclose the aggregate potential milestone obligations, if such obligations exist.

Definitive Proxy Statement

Compensation Discussion and Analysis, page 14

Components of Executive Compensation, page 15

2. We note your response to Comment 2 and your statement that you will discuss levels of achievement with regard to corporate goals and individual performance “[t]o the extent material to an understanding of the annual performance plan and the actual compensation paid to the Company’s named executive officers.” Because your annual incentive awards are based on the achievement of corporate goals and individual performance, discussion of the level of achievement would provide information necessary to an understanding of your compensation policies and decisions regarding named executive officers. Please confirm that your 2010 proxy statement will include a discussion of the levels of achievement with regard to corporate goals and individual performance as they are used to determine the annual incentive awards granted to named executive officers.

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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

cc: William Intner
Hogan & Hartson LLP
100 International Drive, Suite 2000
Baltimore, MD 21202