

Via Facsimile and U.S. Mail
Mail Stop 4720

February 24, 2010

Douglas J. Swirsky
Senior VP, CFO Treasurer and Corporate Secretary
GenVec, Inc.
65 West Watkins Mill Road
Gaithersburg, Maryland 20878

Re: GenVec, Inc.
Registration Statement on Form S-3
Filed February 11, 2010
File No. 333-164862

Dear Mr. Swirsky:

We have limited our review of the above listed filing to the issues we have addressed in our comments below. 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 filings. 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. Please feel free to call us at the telephone numbers listed at the end of this letter.

Form S-3 filed February 11, 2010

1. Please provide updated audited financial statements for the fiscal year ended December 31, 2009. See Item 3-12(b) of Regulation S-X. In the event you seek to provide this information by incorporating by reference the company's Form 10-K for the fiscal year ended December 31, 2009, including all required Part III information, please revise the section on page 16 of the filing titled "Incorporation of Certain Documents by Reference" to incorporate by reference all filings filed by the company pursuant to the Exchange Act after "the date of the initial registration statement and prior to effectiveness of the registration statement." See Question 123.05 of the Securities Act Forms Compliance and Disclosure Interpretations. This updated financial information must be provided prior to requesting effectiveness of the registration statement.

* * *

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings to be certain that the filings include 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 filings or in response to our comments on your filings.

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.

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Please contact Laura Crotty at (202) 551-3563 or myself at (202) 551-3715 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: Asher M. Rubin
Hogan & Hartson LLP
100 International Drive, Suite 2000
Baltimore, MD 21202