



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

Mail Stop 3561

April 13, 2017

Via E-mail

Randal J. Kirk
Chief Executive Officer
Intrexon Corporation
20374 Seneca Meadows Parkway
Germantown, Maryland 20876

**Re: Intrexon Corporation
Registration Statement on Form S-4
Filed March 17, 2017
File No. 333-216808**

Dear Mr. Kirk:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. We note you incorporate by reference your Annual Report on Form 10-K for fiscal year ended December 31, 2016, which incorporates by reference your Definitive Proxy Statement relating your 2017 Annual Meeting of Shareholders. Prior to requesting acceleration of the effective date of this registration statement, please file your definitive proxy statement, or alternatively, amend your Form 10-K to provide the information required by Part III to Form 10-K. See Item 18(a)(7) of Form S-4.

Background of the Merger, page 45

Detailed Timeline of Events, page 46

2. We note the disclosure of the morning meeting held on January 21, 2017 of the GenVec board of directors. Please disclose the “trade-offs” discussed regarding the strategic transaction and the financing transaction.
3. We note that a special committee was formed by the GenVec board to consider the terms of and negotiate the Intrexon transaction. Please identify the members of the special committee.

Opinion of Roth Capital Partner’s as GenVec’s Financial Advisor, page 54

4. We note the limitation on reliance by shareholders in the fairness opinion provided by Roth Capital Partners. Because it is inconsistent with the disclosures relating to the opinion, the limitation should be deleted. Alternatively, disclose the basis for Roth Capital Markets belief that shareholders cannot rely upon the opinion to support any claims against Roth Capital Markets arising under applicable state law (e.g., the inclusion of an express disclaimer in Financial Advisors engagement letter with GenVec). Describe any applicable state-law authority regarding the availability of such potential defenses. In the absence of applicable state-law authority, disclose that the availability of such a defense will be resolved by a court of competent jurisdiction. Also disclose that resolution of the question of the availability of such a defense will have no effect on the rights and responsibilities of the board of directors under applicable state law. Further disclose that the availability of such a state-law defense to Roth Capital Markets would have no effect on the rights and responsibilities of Roth Capital Markets or the board of directors under the federal securities laws.

The Merger Agreement, page 72

5. We note your statements that representations and warranties “were made solely for purposes of the merger agreement” and “were made solely for the benefit of the parties to the merger agreement.” Please revise to remove any potential implication that the referenced merger agreement does not constitute public disclosure under the federal securities laws.
6. We note your statements that the representations and warranties were negotiated for the purpose of allocating risk “rather than to establish matters as facts” and that the “provisions should not be read or relied upon as characterizations of the actual state of facts or condition of...” the parties. Please revise to remove any potential implication that the referenced merger agreement does not constitute public disclosure under the federal securities laws.

Material U.S. federal income tax consequences of the merger, page 87

7. Please advise us why you believe that a tax opinion is not required. See Item 601(b)(8) of Regulation S-K. Please also see Staff Legal Bulletin No. 19 for guidance.

Exhibits

8. Please file the Research Collaboration and License Agreement between GenVec and Novartis, dated January 13, 2010 (the NVS License Agreement). See Item 21(a) of Form S-4 and Item 601(b)(10) of Regulation S-K.

We remind you that the company and its management are responsible for the accuracy and adequacy of their disclosures, notwithstanding any review, comments, action or absence of action by the staff.

Refer to Rules 460 and 461 regarding requests for acceleration. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Michael Killoy at (202) 551-7576 or David Link at (202) 551-3356 with any questions.

Sincerely,

/s/ David Link for

John Reynolds
Assistant Director
Office of Beverages, Apparel,
and Mining

cc: Corby J. Baumann, Esq.
Thompson Hine LLP