



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 3561

May 3, 2017

Via E-mail

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

**Re: Intrexon Corporation
Amendment No.1 to Registration Statement on Form S-4
Filed April 21, 2017
File No. 333-216808**

Dear Mr. Kirk:

We have reviewed your amended registration statement and have the following comments. In our comment, 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 comment applies 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 this comment, we may have additional comments. Unless we note otherwise, our references to prior comments are to comments in our April 13, 2017 letter.

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

1. We note your disclosure on page 12 and 87 stating that “it is intended, and each of Intrexon and GenVec expect, the merger will qualify as a ‘reorganization ...’ and on page 88 that “Intrexon and GenVec believe that the merger should satisfy the other technical requirements to qualify as a ‘reorganization ...’ (emphasis added). We also note your statement that “it will not be possible to make this determination with certainty until after the closing of the merger and the expiration of the 36-month CPR payment period.” Additionally, we note your response to comment 7 and disclosure in the filing that the tax treatment of the merger, including treatment of the CPR’s, is unclear and uncertain. Please reconcile these statements.

Randal Kirk
Intrexon Corporation
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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