



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

DIVISION OF  
CORPORATION FINANCE

July 2, 2013

Via E-mail

Randal J. Kirk  
President and Chief Executive Officer  
Intrexon Corporation  
2875 South Ocean Boulevard, Suite 215  
Palm Beach, Florida 33480

**Re: Intrexon Corporation  
Amendment No. 2 to Draft Registration Statement on Form S-1  
Submitted June 17, 2013  
CIK No. 0001356090**

Dear Mr. Kirk:

We have reviewed your amended draft registration statement and have the following 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 providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. 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 the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Prospectus Summary

Company overview, page 1

1. We note your response to our prior comment 10. Please expand your disclosure in this section to provide a brief description of your technology platforms.

Gene Summary consolidated financial data, page 8

Selected consolidated financial data, page 50

2. The identification of some columns of financial data as “unaudited” may give an investor the impression that the other columns are audited. We believe your disclosure in the introductory paragraph of these sections is sufficient to highlight to investors which financial data have been derived from audited or unaudited financial statements. Please revise your disclosure to remove any label identifying the columns as unaudited.

Risk Factors

We may be sued for product liability, page 20

3. We note your response to our prior comment 16. Please expand your disclosure to quantify the amount of product liability insurance which is considered standard for the industry.

Risks related to our intellectual property, page 26

Our ability to compete may decline if we do not adequately protect our..., page 26

4. We note your response to our prior comment 18. Please revise your disclosure in this risk factor to provide a description of your patents or pending patent applications relating to your key technology platforms, provide the foreign jurisdictions in which you have issued or pending applications relating to your key technologies and the expiration date of such U.S. and foreign patents as you have done on page 104.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Research and development expenses, page 55

5. Please refer to prior comment 27. We continue to believe that your disclosure does not provide investors with an adequate understanding of the nature of your research and development activities. Please provide for each period presented a separate quantification of research and development expenses for costs to improve your platform technologies and costs incurred to develop specific applications of your technologies in support of ECC collaborations.

Critical Accounting Policies and Estimates

Share-Based Compensation, page 75

6. Please refer to prior comment 29. We acknowledge your existing disclosure. Prior to the effective date, please update your filing with additional disclosure that progressively bridges from your latest price per share to the mid-point of your estimated IPO price range. Reconcile and explain the differences between the values included in your analysis.

Business

Our suite of proprietary and complementary technologies

Elanco, page 98

7. We note your response to our prior comment 35. Please expand your disclosure to describe the types of diseases in companion animals and livestock that the lead programs of this ECC are targeting. Also, please disclose to which of your technologies Elanco has access.

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Page 3

Certain relationships and related person transactions  
Transactions with Third Security, LLC and affiliates, page 138

8. We note your response to our prior comment 50 that you expanded your disclosure on pages 102-103. We also note that the Biolife Cell Bank, Inc. collaboration agreement is a related party agreement. Accordingly, please also provide a description of the Biolife Cell Bank, Inc. agreement in this section as well.

Financial Statements of Intrexon Corporation  
Notes to Consolidated Financial Statements  
6. Investment in AquaBounty, page F-38

9. Please revise your disclosure to remove any reference to the purchase price allocation. Under ASC Topic 805, assets acquired and liabilities assumed are generally recorded at their fair values.

If you intend to respond to these comments with an amended draft registration statement, please submit it and any associated correspondence in accordance with the guidance we provide in the Division's October 11, 2012 announcement on the SEC website at <http://www.sec.gov/divisions/corpfin/cfannouncements/drsfilingprocedures101512.htm>.

You may contact Franklin Wyman at (202) 551-3660 or Donald Abbott at (202) 551-3608 if you have questions regarding comments on the financial statements and related matters. Please contact Johnny Gharib at (202) 551-3170, John Krug at (202) 551-3862 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler  
Assistant Director

Via E-mail  
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Richmond, Virginia 23219