

December 12, 2016

VIA EDGAR

Division of Corporation Finance
Securities and Exchange Commission
100 F Street N.E.
Washington, D.C. 20549
Attention: J. Nolan McWilliams

**Re: AquaBounty Technologies, Inc.
Registration Statement on Form 10-12B
Filed November 7, 2016
File No. 001-36426**

Ladies and Gentlemen:

Set forth below are the responses of AquaBounty Technologies, Inc. (the “**Company**”) to the comments of the staff (the “**Staff**”) of the Securities and Exchange Commission (the “**Commission**”) Division of Corporation Finance contained in the Staff’s letter dated December 2, 2016 relating to the Company’s Registration Statement on Form 10 (the “**Registration Statement**”). We are also filing simultaneously herewith Amendment No. 1 (“**Amendment No. 1**”) to the Registration Statement. Capitalized terms used but not defined herein have the meanings set forth in the Registration Statement. For reference, the Staff’s comments are provided below in bold immediately prior to the Company’s responses.

General

- 1. Please provide legal analysis, with reference to our guidance in Staff Legal Bulletin No. 4 (September 16, 1997), available on our website at www.sec.gov, of the reasons that you believe the business purposes of the transaction outlined on pages 26-27 of the Information Statement mitigate the registration requirements otherwise applicable to the proposed Distribution. In your response, please reference Intrexon’s continuing majority equity holding in the company, and discuss the reasons that Intrexon will not benefit indirectly from the proposed spin-off of AquaBounty’s shares. Finally, please address the fact that AquaBounty has yet to record a profit, as well as the material contractual obligations that AquaBounty will continue to owe to Intrexon following the spin-off.**

Response:

The Company respectfully acknowledges the Staff’s comment. Intrexon has considered the Staff’s comment and the guidance in Staff Legal Bulletin No. 4 (September 16, 1997) (“SLAB No. 4”) and believes the business purposes of the transaction mitigate the registration requirements otherwise applicable to the proposed Distribution. SLAB No. 4. states that “the

parent must determine whether there is a valid business purpose for the spin-off” and provides several examples of valid business purposes for a spin-off recognized by the Division of Corporation Finance, including “enhancing access to financing by allowing the financial community to focus separately on each business” and “allowing management of each business to focus solely on that business.”

The Distribution will enhance AquaBounty’s access to financing by allowing the financial community to focus separately on AquaBounty’s business and facilitate ready access to the capital markets. The Distribution will facilitate the listing of AquaBounty’s shares on the NASDAQ Capital Market. Without the Distribution, AquaBounty’s shares do not currently meet the listing requirements for the NASDAQ Capital Market because there is an insufficient number of AquaBounty shares held by non-affiliates. The Distribution will address this deficiency. As the Staff notes, AquaBounty has yet to record a profit and it is important that AquaBounty have increased access to capital. Furthermore, reducing Intrexon’s ownership position in AquaBounty will help enable AquaBounty to maintain its listing on the AIM Market of the London Stock Exchange. Maintaining its AIM Market listing will help ensure AquaBounty’s continued access to the London market.

Intrexon’s continuing majority equity holding does not alter the analysis above. AquaBounty’s enhanced access to the U.S. capital markets that is expected to occur as a result of the Distribution is not intended to benefit Intrexon directly or indirectly. In fact, because Intrexon will continue to be an affiliate of AquaBounty, its shares will be subject to the volume limitation and resale restrictions of Rule 144. Accordingly, AquaBounty’s NASDAQ Capital Market listing will not enable Intrexon to freely resell its AquaBounty shares. The main business purpose of the Distribution is to provide AquaBounty with enhanced access to capital.

The fact that AquaBounty has yet to record a profit does not mitigate the business purpose of the Distribution. Many companies that are listed on the NASDAQ Capital Market have yet to realize a profit. In fact, listing on the NASDAQ Capital Market is often a driver for companies such as AquaBounty to afford themselves enhanced access to the capital markets when funds from operations are not sufficient to operate the companies’ business. Similar to AquaBounty, Intrexon has also yet to record a profit, having generated net losses since its inception. In this regard, we note that Intrexon’s public disclosures are clear that it is not profitable and that it must raise funds for its own business purposes. For example, Item 1 of Part I of Intrexon’s Form 10-K for the year ended December 31, 2015 (the “Intrexon Form 10-K”) states that “If we fail to raise sufficient funds and continue to incur losses, our ability to fund our operations, take advantage of strategic opportunities, develop products or technologies, or otherwise respond to competitive pressures could be significantly limited.”

Intrexon also has advised us that it has its own business purposes for which it needs capital and that the Distribution will enable both companies to market themselves differently to the

capital markets. The businesses of Intrexon and AquaBounty are distinct and each has separate management teams that focus on each business. AquaBounty is currently focused on the production and commercialization of salmon for human consumption, and Intrexon does not have any business that relates to the production and commercialization of salmon or any other finfish, other than through its ownership interest in AquaBounty. While future products developed by AquaBounty may use Intrexon technology, its current salmon product does not use any Intrexon technology. After the Distribution, the principal focus of AquaBounty and its management will continue to be on matters unrelated to Intrexon's technology, and the management teams of AquaBounty and Intrexon will focus on different matters, other than potentially through the commercial arrangement under the Exclusive Channel Collaboration Agreement (the "ECC") executed in February 2013, which is distinct and separate from Intrexon's ownership in AquaBounty and, as discussed below, is consistent with the basis upon which Intrexon regularly contracts with third parties.

The Company notes the Staff's request that it address the material contractual obligations that AquaBounty will continue to owe to Intrexon following the Distribution. Following the spin-off, AquaBounty will continue to be obligated to Intrexon under the ECC. AquaBounty is permitted to use Intrexon's UltraVector and other technology platforms to develop and commercialize additional genetically modified traits in finfish for human consumption under the ECC. As disclosed in the information statement filed with the Registration Statement as Exhibit 99.1 (the "Information Statement"), AquaBounty is required to pay Intrexon, on a quarterly basis, 16.66% of the gross profits calculated for each developed product. AquaBounty also agreed to pay Intrexon 50% of the quarterly revenue obtained from a sublicensor in the event of a sublicensing arrangement. In addition, AquaBounty has agreed to reimburse Intrexon for the costs of certain services provided by Intrexon. For the avoidance of doubt, AquaBounty's lead product, AquAdvantage Salmon, is not considered a product for purposes of the gross profits calculation or the sublicensor provision, and we have added disclosure stating that to be the case. The existence of the contractual obligations under the ECC are separate and apart from Intrexon's stock ownership in AquaBounty and when entered into were on an arms' length basis between two companies. Furthermore, when AquaBounty entered into the ECC, AquaBounty was listed on the AIM Market of the London Stock Exchange and the transaction was approved by the independent directors of AquaBounty and approved pursuant to the AIM rules by AquaBounty's then-independent nominated advisor, which is a corporate finance advisor approved by the London Stock Exchange to act as the primary regulatory authority and provide advice to the company for which it is serving as nominated advisor, including any transaction that could be viewed as related party transactions. The specific level of Intrexon's ownership in AquaBounty was not a factor that impacted the terms of the ECC with Intrexon. The Company respectfully draws the Staff's attention to the public disclosures of Intrexon, which discuss that Intrexon's business model is to enter into exclusive channel collaborations of the type contemplated by the ECC. For example, Item 1 of Part I of the Intrexon Form 10-K states that "Our business model is to commercialize our technologies through exclusive channel collaborations, or ECCs, with collaborators that have industry expertise, development resources and sales and marketing capabilities to bring new and improved products and processes to market." The ECC between Intrexon and AquaBounty is unrelated to the level of Intrexon's ownership in AquaBounty and is not associated with AquaBounty's principal focus of business, which is its AquAdvantage Salmon.

Exhibit 99.1

General

2. **Please provide us mock-ups of any pages that include any pictures or graphics to be presented, including any accompanying captions. Please keep in mind, in scheduling the printing and distribution of the information statement, that we may have comments after our review of the materials.**

Response:

In response to the Staff's comment, the Company undertakes to provide to the Staff for its review any additional pictures or graphics to be presented in future amendments to the Registration Statement, including any accompanying captions. Amendment No. 1 does not include any pictures or graphics that were not included with the Registration Statement filed on November 7, 2016.

Letter to Intrexon Shareholders

3. **Please tell us the basis for your conclusion that the approval of Intrexon's shareholders is not required as a matter of Virginia law.**

Response:

In response to the Staff's comment, Intrexon has provided the following response to the Staff's comment for inclusion in this letter:

Section 13.1-723 of the Virginia Stock Corporation Act states that "unless the articles of incorporation otherwise provide, no approval of the shareholders of a corporation is required... to distribute assets pro rata to the holders of one or more classes or series of the corporation's shares." As disclosed in the Information Statement, the shares of AquaBounty common stock to be distributed in the Distribution will be distributed as a pro rata dividend to Intrexon shareholders as of the record date. Intrexon's Articles of Incorporation do not require shareholder approval for Intrexon to distribute assets as a pro rata dividend. Accordingly, Intrexon has concluded that the approval of Intrexon's shareholders in connection with the Distribution is not required as a matter of Virginia law.

Questions and Answers about the Distribution, page 2

What other transactions are expected to occur in connection with the Distribution? page 2

4. **Since the conversion of the dollar denominated loan of \$10 million to common shares will be calculated in pence, please briefly explain what currency exchange benchmark you will apply.**

Response:

In response to the Staff's comment, the Company has revised the disclosure on pages 2, 9, 67 and 84 of the Information Statement to indicate that the currency exchange rate used will be the British pound sterling to U.S. dollar exchange rate, as reported by Reuters, as of the business day prior to the conversion.

What are the reasons for and benefits of the Distribution? page 3

5. **Please clarify the ways in which Intrexon’s shareholders will participate directly in the potential value creation in AquaBounty. Include examples of the ways in which their participation will differ following the spin-off.**

Response:

In response to the Staff’s comment, the disclosure on page 3 of the Information Statement has been revised to clarify that the opportunity to participate directly in the potential value creation refers to the direct ownership of shares of AquaBounty. Additional disclosures have been added on page 8 and page 28, including a discussion of examples on page 28 in “The Distribution—Reasons for the Distribution” section. A cross references to the “Reasons for the Distribution” section has been added to page 3.

Who will manage AquaBounty after the Distribution? page 3

6. **Please clarify briefly how AquaBounty will continue to benefit from the knowledge, skills and experience of Intrexon’s full board of directors following the spin-off. Explain whether you expect the full board to continue to manage AquaBounty.**

Response:

In response to the Staff’s comment, the Company has revised the disclosure on page 3 of the Information Statement to clarify that it will continue to benefit from the knowledge, skills and experience of, and will continue to be managed by, AquaBounty’s full board of directors, rather than Intrexon’s full board of directors, following the Distribution.

What are the US federal income tax consequences to me of the distribution of shares of AquaBounty common stock pursuant to the Distribution? page 5

7. **In this question or in the question discussing fractional shares above, please include the information that the cash distribution in respect of fractional shares will be taxable.**

Response:

In response to the Staff comment, the answer on page 5 of the Information Statement and the tax disclosure section on page 34 have been revised to include the information that the cash distribution in respect of fractional shares will be taxable.

Summary, page 7

Overview, page 7

8. **Please revise the Overview to include the information that the company has experienced losses since inception, and quantify your net losses over the past two years.**

Response:

In response to the Staff’s comment, the Company has revised the disclosure on page 7 of the Information Statement.

Relationship of AquaBounty and Intrexon after the Distribution, page 8

9. **Please revise your disclosure in this section to include the following: a brief description of the Exclusive Channel Collaboration Agreements (“ECCs”); the information that Intrexon will continue to receive 16.66% of AquaBounty’s profits for each developed product, and that AquaBounty is obligated to pay 50% of any quarterly revenue obtained from sublicensors (if any), pursuant to the ECCs; and that AquaBounty will be a “controlled company” by virtue of Intrexon’s continued majority holding following the Distribution.**

Response:

In response to the Staff’s comment, the Company has revised the disclosure on page 9 of the Information Statement.

10. **Briefly describe the material terms of the \$10 million Convertible Loan and the debt financing agreement with Intrexon in the Summary section.**

Response:

In response to the Staff’s comment, the Company has revised the disclosure on pages 8 and 9 of the Information Statement.

Risk Factors, page 11

11. **Please provide a risk factor outlining the information disclosed under “Restrictions on Atlantic Salmon Farming” on page 57. Disclose in a new risk factor that some states have adopted regulatory bans on Atlantic salmon farming and explain the risks that this presents for the company, or tell us why you do not believe that this is a risk for AquaBounty.**

Response:

In response to the Staff’s comment, the Company has revised the disclosure on page 14 of the Information Statement.

The Distribution, page 26

Reasons for the Distribution, page 26

12. **Please clarify what you mean when you disclose that “Intrexon believes that it can reduce its direct ownership position in AquaBounty without changing its strategic relationship with AquaBounty.” Explain the various aspects of the strategic relationship and why they will remain the same.**

Response:

In response to the Staff’s comment, the disclosure on page 28 of the Information Statement has been revised to remove the word “strategic.” The disclosure on pages 28 and 29 of the Information Statement has also been clarified to highlight the two significant elements of the existing relationship between Intrexon and AquaBounty, namely the majority ownership position of Intrexon in AquaBounty and the ECC between the parties that will continue.

- 13. Please revise to discuss the negative factors, if any, that the board considered in deciding to enter into the Distribution. If the board did not consider any negative aspects to the Distribution, please state that in the disclosure. Also, please disclose whether the board considered any alternatives to the Distribution.**

Response:

In response to the Staff's comment, the disclosure on page 28 has been revised to add additional discussion of factors considered by the Intrexon board of directors, as well as to reflect that Intrexon's board of directors did not consider specific alternatives at the time it considered the Distribution. Additionally, the discussion of the business of AquaBounty, including the risk factors included in the Information Statement, addresses material risks and uncertainties that Intrexon's shareholders should consider with respect to their continued direct ownership in AquaBounty after the Distribution.

- 14. We note that Intrexon will retain control of its UltraVector® and other technology platforms to develop additional genetically modified fish traits. Please revise to explain in greater detail the reasons for separating the platform from AquaBounty's production capability.**

Response:

In response to the Staff's comment, the disclosure on page 38 of the Information Statement has been revised to clarify that Intrexon's UltraVector and technology platforms that are the subject of the ECC are unrelated to AquaBounty's production of salmon. AquaBounty's salmon production capabilities are separate from, and do not rely upon, Intrexon's technology, and were developed prior to Intrexon's original investment in AquaBounty and the entry into the ECC.

Information on AquaBounty, page 53

Atlantic Salmon Disease Impact, page 56

- 15. Please substantiate your statement that closed, land-based production systems such as those used by AquaBounty are less prone to disease vectors than open sea-cage systems. If you are not aware of scientific studies conducted by unrelated and qualified researchers, please state that in your disclosure. Please furnish copies to us of any studies that you cite.**

Response:

The Company acknowledges the Staff's comment. Recirculating aquaculture systems, or "RAS", employ sophisticated water treatment technology including the use of ozone, salt treatment and ultraviolet radiation to kill potential bacterial, fungal, or viral pathogens which might enter the system. In addition, incoming water is similarly filtered and treated prior to entering the system, and water quality is regularly measured as part of the standard procedures. The fish in RAS facilities are generally not vaccinated against typical fish diseases, and no antibiotics, pesticides or pharmacological agents are typically required. RAS systems employ effective biosecurity to prevent disease by reducing or eliminating the introduction of pathogens and continuously treating the water to assure optimal fish health.

In sharp contrast, sea cage, or conventional salmon aquaculture fish, are housed in large cages in coastal waterways exposed to currents which can bring a variety of pathogens in contact with the farmed salmon. The presence of pathogens in an uncontrolled environment is a universally accepted fact in human and animal health. The presence of disease agents in these uncontrolled water currents results in infection and spread of infection within the captive population. The risks and outcomes of this practice are well established in outbreaks of a variety of bacterial and viral diseases as well as water fouling and contamination due to algal blooms and similar events. Furthermore, the use of antibiotics, vaccines, and other pharmacological agents is similarly well documented, presenting a risk to the environment and also to the consumers of treated fish.

Among other bases for its belief that RAS facilities are less prone to disease vectors than open sea-cage systems, the Company is providing supplementally to the Staff a 2013 report of the results of freshwater growout study undertaken by The Conservation Fund's Freshwater Institute. The report is also presently available at http://www.conservationfund.org/images/projects/files/FI-ASF_Final-Report_March-20131.pdf. The institute studied the incidence of pathogens in an RAS, finding no bacterial or viral pathogens in fish reared in the closed and contained RAS after samples were tested by a certified fish health laboratory. The report describes essentially all the parameters of fish growth and health, but on page 42 of the report specifically addresses the health of the fish and the lack of necessity to use therapeutic agents.

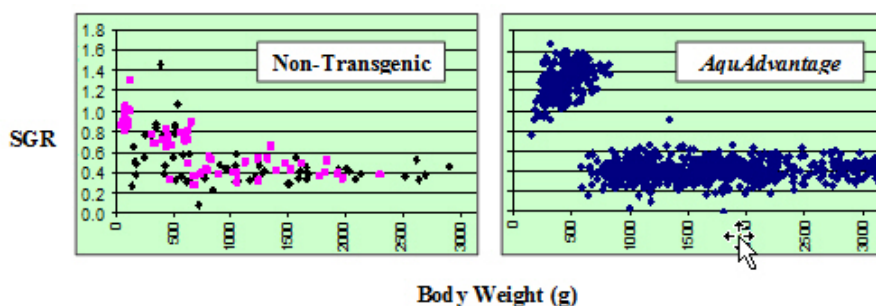
Our Product, page 57

16. Please substantiate that AquAdvantage salmon do not reach a larger final size than their traditional counterparts. Please also balance your disclosure by including information about the risks of adverse consumer reaction and regulatory scrutiny if AquAdvantage salmon were found to grow to a larger final size than their traditional counterparts.

Response:

The significantly increased growth rate of AquAdvantage Salmon during early life is not sustained during their subsequent development to mature size. As is shown in the following figure, the performance data collected on populations of AquAdvantage Salmon and conventional salmon (controls) at the AquaBounty Canada Fortune facility indicates that the increased specific growth rate exhibited by AquAdvantage Salmon decreases to a value consistent with that of controls during the juvenile stage of development. As a result, AquAdvantage Salmon achieve their mature size more rapidly than comparators, but are not larger than their comparators at maturity.

Change in Specific Growth Rate During AquAdvantage Salmon Development



Historically at AQUA Bounty Canada in Fortune Bay, Prince Edward Island, both AquAdvantage Salmon and controls were grown to maturation for propagation purposes. Over the past twenty years, weight data has been collected on mature broodstock. The following data presented is not study data but was collected during the annual spawning season and is indicative of maximum size ranges observed within the AquAdvantage Salmon and control fish at the facility for the 2005 spawning year.

Size Comparisons of AquAdvantage Salmon Broodstock to Non-Transgenic Broodstock

Spawning Year	Age	Group ¹	Average Weight (kg ± SEM)
2005	3 yr	TX	7.983 ± 0.2085
	4 yr	TX	11.66 ± 0.4487
	3 yr	SC	6.608 ± 0.3321
	4 yr	SC	10.90 ± 0.2441

Abbreviations: SC = Sponsor Control (*i.e.*, non-transgenic broodstock); TX, = Treated (*i.e.*, AquAdvantage Salmon broodstock). Data were retrieved *ad hoc* from hatchery records.

As can be seen from the data, the mean weights of AquAdvantage Salmon and the controls converge over time, to the point where the differences are not statistically significant.

In response to the Staff’s comment, the Company has revised its disclosure on pages 13 and 14 of the Information Statement to discuss risks of adverse consumer reaction and regulatory scrutiny if AquAdvantage Salmon was found, or believed, to grow to a larger final size than traditional Atlantic Salmon.

Security Ownership of Certain Beneficial Owners and Management, page 75

17. For each beneficial owner that is not a natural person, please name the natural persons who have or share voting or investment power of the shares held by such owner.

Response:

In response to the Staff’s comment, the disclosure on page 77 of the Information Statement has been revised to disclose the natural persons that Intrexon advises have or share voting or investment power of the shares held by Intrexon. The disclosure on page 77 has also been revised to clarify that approximately 14.0% of the Company’s shares are held by CFR International SpA, a wholly owned subsidiary of Abbott Laboratories, a reporting company under the Securities Exchange Act of 1934.

* * * *

In connection with the Company's response to the Staff's comments, the Company acknowledges 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.

Please call Brad Brassler at (312) 269-4252 should you wish to discuss the matters addressed above or other issues relating to the subject Form 10. Thank you for your attention to this matter.

Very truly yours,

/s/ Ronald L. Stotish
Ronald L. Stotish
Chief Executive Officer

cc: Brad Brassler
Jones Day

William Intner
Hogan Lovells

David Frank
AquaBounty Technologies, Inc.

Christopher Martin
AquaBounty Technologies, Inc.