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December 24, 2013

U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549
Attn: Jeffrey P. Riedler
Scot Foley
Bryan Pitko
Donald Abbott
Lisa Vanjoske

RE: Aquinox Pharmaceuticals (USA) Inc.
Confidential Draft Registration Statement on Form S-1
Submitted November 18, 2013
CIK No. 0001404644

Ladies and Gentlemen:

On behalf of Aquinox Pharmaceuticals (USA) Inc. (***"Aquinox" or the "Company"***), we are submitting this letter and the following information in response to a letter, dated December 18, 2013, from the staff (the ***"Staff"***) of the Securities and Exchange Commission (the ***"Commission"***) with respect to the Company's Confidential Draft Registration Statement on Form S-1 (the ***"Registration Statement"***), submitted on November 18, 2013. We are also electronically transmitting for confidential submission an amended version of the Registration Statement (the ***"Amended Registration Statement"***) and sending the Staff a hard copy of this letter, the Amended Registration Statement, and a version of the Registration Statement that is marked to show changes to the one originally submitted on November 18, 2013.

The numbering of the paragraphs below corresponds to the numbering of the comments in the letter. For the Staff's convenience, we have incorporated your comments into this response letter in italics. Page references in the text of this response letter correspond to the page numbers in the Amended Registration Statement. Capitalized terms used in this letter but otherwise not defined herein shall have the meanings ascribed to such terms in the Amended Registration Statement.

General

1. Please confirm that the graphics included in your registration statement are the only graphics you will use in your prospectus. If those are not the only graphics, please provide any additional graphics prior to their use for our review.

The Company acknowledges the Staff's comment and confirms that the graphics included in the Amended Registration Statement are the only graphics the Company will use in its prospectus.

2. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications. Similarly, please supplementally provide us with any research reports about you that are published or distributed in reliance upon Section 2(a)(3) of the Securities Act of 1933 added by Section 105(a) of the Jumpstart Our Business Startups Act by any broker or dealer that is participating or will participate in your offering.

The Company advises the Staff that neither it nor anyone authorized on its behalf has presented any written communications to potential investors in reliance on Section 5(d) of the Securities Act of 1933, as amended (the "***Securities Act***"), nor is the Company aware of any research reports about the Company that have been published or distributed in reliance upon Section 2(a)(3) of the Securities Act, added by Section 105 of the Jumpstart Our Business Startups Act, by any broker or dealer that is participating or will participate in this offering. If the Company presents such written communications or becomes aware that such materials or research reports have been distributed, the Company will notify the Staff and provide copies of the relevant communications or reports.

Prospectus Summary
Our Pipeline, page 1

3. Please explain the terms "lipopolysaccharide (LPS) challenge" and "sputum neutrophils" in this discussion.

In response to the Staff's comment, the Company has revised the disclosure on page 2 to explain the terms "lipopolysaccharide (LPS) challenge" and "sputum neutrophils."

4. Please explain what the p-values you cite in your discussion represent and what p-values constitute a statistically significant result in your clinical trials.

In response to the Staff's comment, the Company has revised the disclosure on page 2 to explain what the p-values the Company cites represent and what p-values constitute a statistically significant result in its clinical trials.

Risks Associated to Our Business, page 3

5. In your first bullet point, please include your accumulated deficit to date.

In response to the Staff's comment, the Company has revised the disclosure on page 3 to include its accumulated deficit as of September 30, 2013.

Summary Combined Financial Data
Combined Balance Sheet Data, page 9

6. It appears that your pro forma total stockholders' deficit at September 30, 2013 should be a positive number and result in pro forma total stockholders' equity. Please revise. This comment also applies to your presentation in Selected Combined Financial Data on page 55.

In response to the Staff's comment, the Company has revised the pro forma total stockholders' deficit disclosed in the combined balance sheet data on pages 9 and 55 to reflect pro forma total stockholders' equity.

7. You disclose in footnote 3 that the balance sheet pro forma as adjusted basis excludes any impact of the term loan facility with Silicon Valley Bank ("SVB") you entered into on October 23, 2013 for up to $4.0 million of which $2.5 million was received on October 30, 2013. It appears that this debt is material and should be presented in the pro forma as adjusted column. Please revise or explain to us why this event is not material to investors. Please refer to Rule 11-01(a)(8) of Regulation S-X. This comment also applies to your presentation in Capitalization on page 49 and Selected Combined Financial Data on page 55.

In response to the Staff's comment, the Company agrees that the SVB debt is material and as such, the Company has revised the pro forma as adjusted column on pages 9 and 48-49 to include the impact of the term loan facility with SVB. In addition, the Company has revised its disclosure in footnote 2 to the Selected Combined Financial Data on page 55.

Risk Factors
General

8. We note that your disclosure on page 84 and 86 of the registration statement that your Phase 2 clinical trials for AQX-1125 in COPD and BPS/IC will be conducted in Northern and Central Europe and Canada, respectively. Please revise your disclosure to include a separate risk factor which highlights this disclosure and discusses any risks the Company may face as a result of the conduct of clinical trials outside of the United States. For example, you should discuss the possibility that the FDA may not accept the results of such trials and how such lack of acceptance could impact the regulatory approval process.

In response to the Staff's comment, the Company has revised the disclosure on page 19 to include the risk factor, which highlights that Phase 2 clinical trials for AQX-1125 in COPD and BPS/IC will be conducted in Northern and Central Europe and Canada and discusses any risks the Company may face as a result of conducting clinical trials outside of the United States.

Risks Related to Our Business and Industry
"Because the results of preclinical testing or earlier clinical trials are not necessarily predictive of future results ...," page 15

9. Please explain in this risk factor how EXACT-PRO functions and clarify that the primary endpoint in the clinical trial is the change in the severity, duration and reoccurrence of exacerbations in patients as measured by EXACT-PRO. Further, please note here, as you have on page 85, that you are not aware of any instance where EXACT scores have been accepted as endpoints in a Phase 2 or Phase 3 trial.

In response to the Staff's comment, the Company has revised the disclosure on page 16 to disclose how EXACT-PRO functions, to clarify the primary endpoint in the clinical trial and to disclose that the Company is not aware of any instance where EXACT scores have been accepted as endpoints in a Phase 2 or Phase 3 trial.

10. Please specify how endpoints measured using EXACT-PRO differ from accepted clinical COPD endpoints.

In response to the Staff's comment, the Company has revised the disclosure on page 16 to specify how endpoints measured using EXACT-PRO differ from accepted clinical COPD endpoints.

"SHIP1 has not been validated as a target," page 16

11. Please briefly explain the ramifications of not yet having been validated as a target and describe the process of target validation.

In response to the Staff's comment, the Company has revised the disclosure on page 16 to briefly explain the ramifications of not yet having been validated as a target and describe the process of target validation.

"Our future success depends on our ability to attract, retain and motivate qualified personnel," page 30

12. Please include in this risk factor the name(s) of the member(s) of your management team, or any other personnel, whose departure you believe would have the potential of creating a material adverse effect.

In response to the Staff's comment, the Company has revised the disclosure on pages 30-31 to identify the members of its management team, or any other personnel, whose departure the Company believes would have the potential of creating a material adverse effect.

Risks Related to Our Dependence on Third Parties
"We have no experience manufacturing our product candidates on a large clinical or commercial scale and have no manufacturing facility . . .," page 32

13. Here, and in your Manufacturing discussion on pages 92-93, please identify your single source CMOs for the manufacture of AQX-1125's active pharmaceutical ingredient and for the final product formulation.

The Company respectfully advises the Staff that it believes it would be competitively disadvantaged if it were to identify its single source CMOs. The Company currently relies on a single CMO for the chemical manufacture of active pharmaceutical ingredient for AQX-1125 and another CMO for the production of AQX-1125 final product formulation. Disclosing the identities of the Company's CMOs would enable competitors to potentially compete unfairly against the Company. For example, a larger competitor with greater resources than the Company could purchase such CMOs excess manufacturing capacity, causing delays in the Company's manufacturing schedule and thereby allowing its competitors to gain a competitive advantage.

Moreover, given the Company's development stage, we respectfully submit that the identities of its CMOs is not material to investors and would not materially enhance an investor's understanding of the Company's business. The Company has disclosed the sole source nature of its CMO relationships, with related risk factor disclosure and does not believe that additionally disclosing the identities of those CMOs would significantly enhance the disclosure to investors. On the other hand, disclosure of the CMOs identities could result in competitive harm to the Company. Accordingly, the Company requests that the identities of its single source CMOs remain undisclosed in the Amended Registration Statement.

Special Note Regarding Forward-Looking Statements and Industry Data, page 44

14. We note your statements that "we have not independently verified market and industry data from third-party sources" and that your internal company research or market definitions have not been validated by any independent source. Please amend your registration statement to remove these statements as it is not appropriate to directly or indirectly disclaim liability for information in your filing.

In response to the Staff's comment, the Company has revised the statements set forth on page 45 with respect to third party information.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Critical Accounting Policies and Significant Judgments and Estimates
Stock-Based Compensation, page 68

15. Please expand your disclosure to disclose the intrinsic value of outstanding vested and unvested options based on the estimated IPO price and the options outstanding as of the most recent balance-sheet date presented. Also include a discussion of each significant factor contributing to the difference between the fair value as of the date of each grant and the estimated IPO price.

In response to the Staff's comment, the Company has revised the disclosure on page 70 to disclose the intrinsic value of the outstanding vested and unvested options based on the estimated IPO price and the options outstanding as of the most recent balance-sheet date presented. The Company included placeholders for values that will be included in a subsequent amendment after the estimated IPO price range has been determined through discussion with its underwriters and based on market conditions at that time. The Company acknowledges the Staff's request for it to include a discussion of each significant factor contributing to the

differences, if any, between the fair value as of the date of each grant and the estimated IPO price. The Company will include such a discussion in a subsequent amendment after the estimated IPO range has been determined.

Fair Value Estimates, page 69

16. You disclose that you are required to estimate the fair value of the common stock underlying their stock-based awards when performing the fair value calculations using the intrinsic value method at each reporting date. Based on your disclosure in the subsequent paragraphs it appears that you can reasonably estimate the fair values as of each grant date and the use of the intrinsic value method is not appropriate. Please revise your disclosure to remove any reference to the use of the intrinsic value method or explain to us why the intrinsic value method is appropriate. Please refer to ASC 718-10-30-21.

In response to the Staff's comment, the Company made an inadvertent reference to the intrinsic value method and has revised the disclosure on page 69 to remove any reference to the use of the intrinsic value method.

Business
AQX-1125, page 78

17. In your discussion of AQX-1125's desirable pharmaceutical properties, please define the terms "linear elimination," "consistent half-life," and "dose proportional exposure."

In response to the Staff's comment, the Company has revised the disclosure on page 79 to eliminate the terms "linear elimination," "consistent half-life," and "dose proportional exposure."

18. In your description of AQX-1125's preclinical inflammatory studies, please explain what neutrophils, eosinophils and macrophages are.

In response to the Staff's comment, the Company has revised the disclosure on page 79 to explain what neutrophils, eosinophils and macrophages are.

Choice of Forum, page 126

19. We note your disclosure entitled Choice of Forum on page 126. Several lawsuits are currently challenging the validity of choice of forum provisions in certificates of incorporation. Please disclose that although you will provide a choice of forum clause in your restated certification of incorporation, it is possible that a court could rule that such provision is inapplicable or unenforceable.

In response to the Staff's comment, the Company has revised the disclosure on page 126 to disclose that although the Company will provide a choice of forum clause in its restated

certification of incorporation, it is possible that a court could rule that such provision is inapplicable or unenforceable.

Combined Financial Statements
Combined Balance Sheets, page F-7

20. Your pro forma deficit accumulated in the development stage line item here does not agree with the amount disclosed on page F-6. Please revise to eliminate all inconsistencies.

In response to the Staff's comment, the Company has revised the disclosure on page F-8 to eliminate this inconsistency.

Item 16. Exhibits and Financial Statement Schedule, page II-3

21. Please file the agreement underlying your term loan facility with Silicon Valley Bank as an exhibit to the registration statement.

In response to the Staff's comment, the Company has filed the agreement underlying its term loan facility with SVB as an exhibit to the Amended Registration Statement.

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Please contact me at (650) 843-5636 or Gordon Empey of Cooley LLP at (206) 452-8752 with any questions or further comments regarding our responses to the Staff's comments.

Sincerely,

/s/ Michael E. Tenta

Michael E. Tenta

cc: DavidJ. Main, Aquinox Pharmaceuticals (USA) Inc.
Kamran Alam, Aquinox Pharmaceuticals (USA) Inc.
Gordon Empey, Cooley LLP
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Joseph Garcia, Blake, Cassels & Graydon LLP
Jim Barron, Deloitte LLP