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

DIVISION OF
CORPORATION FINANCE

January 11, 2018

Hugh O'Dowd
Chief Executive Officer
Neon Therapeutics, Inc.
40 Erie St., Suite 110
Cambridge, MA 02139

Re: Neon Therapeutics, Inc.
Draft Registration Statement on Form S-1
Submitted December 12, 2017
CIK No. 0001694187

Dear Mr. O'Dowd:

We have reviewed your 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.

Draft Registration Statement on Form S-1 submitted December 12, 2017

Prospectus Summary
Overview, page 1

1. Please disclose the basis for your statement that you are "a leader in the field of neoantigen-targeted therapies" and your belief that you have built the "leading neoantigen bioinformatics engine." With regard to the first statement, we note your disclosure on pages 25 and 115 that you compete with many large pharmaceutical companies currently conducting research in neoantigen based therapies and a number of neoantigen therapeutics-focused companies.

Our Product Candidates, page 2

2. Please remove the product development pipeline chart for NEON / SELECT. Your product pipeline table should highlight your products in development that are reasonably likely to result in an approved product in the foreseeable future. Research and discovery activities that precede the identification of a product candidate are too remote to be highlighted in the pipeline table. In addition, please revise the NEON / ONE product development pipeline chart to expand the "late-stage" column in the graph and include the additional clinical trials that will need to be conducted prior to regulatory approval.

Our planned clinical trials or those of our future collaborators may reveal significant adverse events..., page 20

3. Please revise to eliminate mitigating disclosure regarding the adverse events observed.

Use of Proceeds, page 71

4. We note your disclosure that you intend to use a certain amount of the net proceeds from this offering to advance your ongoing clinical development of NEO-PV-01, including a portion of the cost of your ongoing NT-001 clinical trial as well as a portion of the costs of additional clinical trials of NEO-PV-01. Please specify how you anticipate allocating the proceeds among your respective clinical studies, whether ongoing or planned, and estimate how far you expect the offering proceeds will enable you to advance your clinical program.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Critical Accounting Policies and Significant Judgments and Estimates
Stock-Based Compensation, page 90

5. Once you have an estimated offering price or range, please explain to us the reasons for any differences between the recent valuations of your common stock leading up to the IPO and the estimated offering price. This information will help facilitate our review of your accounting for equity issuances including stock compensation and beneficial conversion features.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Emerging Growth Company Status, page 92

6. 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.

Business
NEON / ONE Personal Neoantigen Vaccine Program: NEO-PV-01, page 106

7. We note your disclosure on page 110 that you filed an investigational new drug application ("IND") with the FDA for NEO-PV-01 in July 2016. Please revise to disclose the indication(s) for which you filed the IND.

NT-001: Phase 1b Clinical Trial of NEO-PV-01, page 110

8. We note that the chart on page 111 references the drug Opdivo. Please expand your disclosure to clarify that Opdivo is the brand name of nivolumab. In addition, we note that your disclosure on page 110 indicates that patients will undergo 12 weeks of treatment with nivolumab in your NT-001 clinical trial. However, it appears on your chart on page 111 that Opdivo will be administered for over 24 weeks. Please revise to clarify.

Further Development Plans, page 111

9. With reference to your press releases announcing collaborations with other companies, including Merck and Apexigen, to evaluate NEO-PV-01 in combination with certain other therapies, please expand your disclosure to provide information about any clinical trial collaborations that you plan to initiate in 2018.

Clinical Development Rationale, page 112

10. Please expand to provide additional context regarding the studies or trials in which the results you discuss in the first paragraph on page 113 were observed. For instance, identify the trial or study, its size, when and where it was conducted, its endpoints and any adverse events observed.

Manufacturing, page 114

11. Please revise to identify and discuss your arrangements with the single source suppliers you use for the supply of the vaccine adjuvant and peptides necessary in your ongoing clinical trial. We note your disclosure on p. 59 that there are, in general, relatively few alternative sources of supply. File any material contracts with these sources, or tell us why you do not believe it is required under Item 601(b)(10)(ii)(B) of Regulation S-K.

Intellectual Property, page 115

12. Please revise your disclosure to specify the type of issued U.S. and foreign patents you own and license (such as composition of matter, use or process). In addition, with respect to your patent portfolios for NEO-PTC-01 and NEON / SELECT, please specify how many patents and patent applications are owned and how many are licensed.

License Agreement with the Broad Institute, Inc., page 117

13. Please revise your disclosure regarding the Broad Agreement to provide the following information:
    - the non-refundable license fee paid pursuant to Section 4.1 of the Broad Agreement;
    - the annual license maintenance fee;
    - the percentage of consideration received from sublicensees payable within a ten percentage range; and
    - the "predetermined anniversary date" of the first commercial sale of the royalty term.

General

14. Please provide us proofs of all graphics, visual, or photographic information you will provide in the printed prospectus prior to its use, for example, in a preliminary prospectus. Please note that we may have comments regarding this material.

You may contact Jacob Luxenburg at 202-551-2339 or Jim Rosenberg at 202-551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Irene Paik at 202-551-6553 or Mary Beth Breslin at 202-551-3625 with any other questions.

Division of Corporation Finance
Office of Healthcare & Insurance

cc: Laurie Burlingame, Esq. - Goodwin Procter LLP