

July 23, 2014

By EDGAR and Email

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549-3561
Attn: Mr. Donald Abbott

**Re: Lantheus Holdings, Inc.
Registration Statement on Form S-1, as amended
File No. 333-196998**

Dear Mr. Abbott:

This letter relates to the Registration Statement on Form S-1 (Registration No. 333-196998) (the “**Registration Statement**”), as amended through Amendment No. 2 on July 17, 2014, of Lantheus Holdings, Inc., a Delaware corporation (the “**Company**”). The Company hereby provides the proposed response letter, as well as relevant pages of the Registration Statement which the Company expects to include in Amendment No. 3 to the Registration Statement to be filed on or about July 24, 2014.

Should any questions arise in connection with the filing or this letter, please contact the undersigned at (212) 310-8849 or Noah B. Kressler, Esq. at (212) 310-8360.

Sincerely yours,

/s/ Heather L. Emmel

Heather L. Emmel, Esq.

By EDGAR and Email

July 24, 2014

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549-3561
Attention: Jeffrey P. Reidler

**Re: Lantheus Holdings, Inc.
Amendment No. 2 to Registration Statement on Form S-1
File No. 333-196998
Filed July 17, 2014 (CIK No. 0001521036)**

Dear Mr. Reidler:

On behalf of our client, Lantheus Holdings, Inc., a Delaware corporation (the "Company"), we are filing herewith electronically via EDGAR, Amendment No. 3 ("Amendment No. 3") to the Registration Statement on Form S-1 of the Company (File No. 333-196998) (the "Registration Statement") on July 24, 2014. In connection with such submission, set forth below are the Company's responses to the comments of the Staff communicated in its letter addressed to the Company, dated July 22, 2014. We are sending to the Staff under separate cover courtesy copies of Amendment No. 3, including copies marked to show the changes effected by this filing.

For ease of reference, the Staff's comment is reproduced below in bold and is followed by the Company's response. In addition, unless otherwise indicated, all references to page numbers in such responses are to page numbers in Amendment No. 3.

Prospectus Summary, page 1

Recent Developments, page 7

- 1. Your disclosure of Adjusted EBITDA appears to give greater prominence to this non-GAAP measure. We believe you should balance this disclosure with the comparable financial measure under GAAP. Please revise your disclosure to include preliminary estimated net income or loss for the quarter and any other preliminary financial results that are available.**

The Company acknowledges the Staff's comment and has revised the disclosure on page 8 in response to the Staff's comment. The Company respectfully advises the Staff that it has disclosed the only preliminary financial results available. Furthermore, the Company respectfully advises the Staff that, pursuant to the Commission's position in Item 10(e)(i)(B), a reconciliation of the Company's estimated Adjusted EBITDA to a comparable financial measure under GAAP is not available without unreasonable efforts, as presently-available information would require the Company to present broad ranges for each component element of the reconciliation which, when summed together, would lead to an unreasonably broad range, the end points of which would be above and below the relatively narrow range that the Company currently presents for Adjusted EBITDA in the Registration Statement.

Summary Consolidated Financial and Other Data, page 14

- 2. Footnote 1 discloses that your corporate reorganization had no impact on your historical net income (loss). However, it appears that the corporate reorganization resulted in the retrospective revision of the historical weighted average common shares outstanding and the related net loss per share for each period presented. Also it appears that the number of shares and per share prices in certain sections of the filing has been adjusted to reflect the corporate reorganization. Please provide us with your analysis of the impact the corporate reorganization will have on the historical financial information, historical financial statements and the audit report of Deloitte & Touche LLP.**

The Company acknowledges the Staff's comment and has revised the disclosure on pages 10, 14, 15 and 53 to further clarify the timing and impact of the corporate reorganization in response to the Staff's comment. The Company supplementally advises the Staff that the corporate reorganization and associated reverse stock split will not be effective until after the Registration Statement is declared effective but prior to the consummation of the offering (and not prior to or at the time of effectiveness of the Registration Statement). As such, the corporate reorganization will have no impact on the historical financial information, historical financial statements or the audit report of Deloitte & Touche LLP contained in the Registration Statement. Subsequent to the effectiveness of the Registration

Statement, the consummation of the offering and the effectiveness of the reverse stock split and corporate reorganization, financial statements presented by the Company will reflect the retroactive application of the reverse stock split in accordance with ASC 260-10-55-12 and SAB Topic 4.C *Change in Capital Structure*. Furthermore, the Company respectfully advises the Staff that, consistent with the positions the Staff has taken in analogous contexts, such as in Section 13500 (Stock Splits) of the Division of Corporation Finance Financial Reporting Manual, the impact of the corporate reorganization and associated reverse stock split is prominently disclosed on page 14 of the prospectus for all historical periods for which financial statements are included in the prospectus.

- 3. Please revise footnote 4 to quantify the amount of each pro forma adjustment to explain why pro forma as adjusted cash and cash equivalents will decrease by \$4.8 million and stockholders' equity will increase by \$103.2 million. Provide similar disclosure in the pro forma as adjusted capitalization table.**

The Company acknowledges the Staff's comment and has revised the disclosure on pages 17 and 53 in response to the Staff's comment.

Business

Our Products

DEFINITY, page 104

- 4. Please amend your registration statement to disclose more information regarding the large prospective study to which you refer. Specifically, please disclose who sponsored and conducted the study, the patient population, the criteria used for determining the statistical results and whether you plan to submit the results of this study to the FDA or other regulatory authority.**

The Company acknowledges the Staff's comment and has revised the disclosure on page 104 in response to the Staff's comment.

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Should any questions arise in connection with the filing or this response letter, please contact the undersigned at (212) 310-8849 or Noah B. Kressler, Esq. at (212) 310-8360.

Sincerely yours,

Heather L. Emmel, Esq.
Weil, Gotshal & Manges LLP

cc: Michael P. Duffy
Vice President, General Counsel and Secretary
Lantheus Holdings, Inc.