

June 16, 2015

VIA EDGAR TRANSMISSION

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

**Re: Lantheus Holdings, Inc.
Registration Statement on Form S-1
Filed June 8, 2015
File No. 333-196998**

Dear Mr. Riedler:

On behalf of our client, Lantheus Holdings, Inc., a Delaware corporation (the "Company"), we are transmitting herewith electronically for filing pursuant to Regulation S-T under the Rules and Regulations promulgated under the Securities Act of 1933, as amended (the "Securities Act"), Amendment No. 9 ("Amendment No. 9") to the Registration Statement on Form S-1 of the Company (Registration No. 333-196998) (the "Registration Statement"). In connection with such filing, set forth below are the Company's responses to the comments of the Staff communicated in its letter addressed to the Company, dated June 11, 2015. The Company is sending to the Staff under separate cover courtesy copies of Amendment No. 9, including copies marked to show the changes effected by Amendment No. 9.

For ease of reference, each of the Staff's comments 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. 9. Capitalized terms used herein and not otherwise defined have the meanings ascribed to them in Amendment No. 9.

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

Results of Operations

Gross Profit, page 68

1. **We note your gross profit for the quarterly period ended March 31, 2015 was approximately 48% compared to approximately 41% for the quarterly period ended March 31, 2014. Please address the following:**
 - **You state that TechneLite revenues decreased \$1.9 million during the period primarily related as a result of lower volumes, while TechneLite cost of goods**

sold decreased \$3.2 million due to lower sales unit volumes. Please revise your disclosure to explain the reason for the disproportionate decrease in TechneLite revenues and cost of goods sold. If there are other significant contributing factors, please disclose those as well.

In response to the Staff's comment, the Company has revised the disclosure on page 66 of the Registration Statement. The Company respectfully advises the Staff that there are no other significant contributing factors other than those disclosed.

- **Please disclose the nature of the technology transfer costs, and why these costs decreased and contributed to the \$2.1 million decrease in costs of goods sold attributed to Neurolite.**

In response to the Staff's comment, the Company has revised the disclosure on page 67 of the Registration Statement.

- **You disclose on page 64 regarding Cardinal Supply Agreements that you currently anticipate that overall quarterly levels for the remainder of 2015 will be lower than those experienced during the first quarter of 2015 and during the respective year-ago periods. Please disclose the effect of this and any other known events, uncertainties, trends or commitments on your gross profit percentage in future quarters.**

In response to the Staff's comment, the Company has revised the disclosure on page 64 of the Registration Statement. The Company respectfully advises the Staff that there are no other known events, uncertainties, trends or commitments on its gross profit percentage in future quarters with respect to the Cardinal Supply Agreements.

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

Sincerely yours,

/s/ Heather L. Emmel

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

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