



DIVISION OF
CORPORATION FINANCE

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

April 17, 2014

Via E-mail

Michael P. Duffy
Vice President, General Counsel and Secretary
331 Treble Cove Road, Building 600-2
North Billerica, Massachusetts 01862

**Re: Lantheus MI Holdings, Inc.
Draft Registration Statement on Form S-1
Submitted March 25, 2014
CIK No. 0001521036**

Dear Mr. Duffy:

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.

General

1. Please submit all exhibits as soon as practicable. We may have further comments upon examination of these exhibits.
2. Please confirm that the images included in your draft registration statement are all of the graphic, visual or photographic information you will be including. If you intend to use any additional images, please provide us proofs of such materials. Please note that we may have comments regarding this material.
3. 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.

4. Please disclose the approximate number of holders of your common stock as of the latest practicable date, as required by Item 201(b) of Regulation S-K.
5. Any comments to your confidential treatment request will be sent in a separate letter. Please be advised that any such comments must be resolved prior to requesting effectiveness of the registration statement you will file.

Prospectus Summary, page 1

6. Please define the following scientific terms at their first use to provide a reasonable investor with an understanding of such terms:
 - “radiolabeled;”
 - “single-photon emission computed tomography;”
 - “positron emission tomography;”
 - “radioisotope;”
 - “nuclear myocardial perfusion imaging;” and
 - “cyclotrons.”
7. Please include an organization chart of the structure of your company and its subsidiaries.

Risks Associated With Our Business, page 8

8. Please expand the list to include bullets to briefly describe your losses and level of indebtedness.

Risk Factors - General, page 15

9. Please include a risk factor to address your losses for at least each of the past two years and cumulatively.

“We will not be able to further develop...,” page 29

10. Please disclose any past difficulty you have experienced engaging strategic partners.

“In the ordinary course of business, we may be subject...” page 30

11. Please clarify whether you have obtained product liability coverage and, if so, please state the amount of coverage you have obtained.

“We may not be able to hire or retain...” page 35

12. Please disclose any past difficulty you have had either hiring or retaining qualified personnel.

Dilution, page 49

13. The second paragraph of the introductory section proposes to disclose what appears to be historical net tangible book value and the related per share amount. The dilution table that follows starts with pro forma net tangible book value per share. Please revise your disclosure to correct this inconsistency and disclose what the pro forma amount represents.

Non-GAAP Financial Measures, page 50

14. Refer to your reconciliation to the calculation of Adjusted EBITDA and Adjusted EBITDA before Run-Rate Savings in Summary Consolidated Financial and Other Data. Footnote 1(h) discloses run-rate savings includes cost-savings expected to be realized that are calculated on a pro forma basis. Please explain to us how combining cost savings realized and to be realized on a pro forma basis in one line item is meaningful to investors. Also, explain to us how the cost savings to be realized adjustment is factually supportable and how your presentation complies with the disclosure requirements of Rule 11-02(b)(6) of Regulation S-X.
15. Further, please expand your disclosure to explain how you use your non-GAAP measures for additional purposes, such as executive compensation, as required by Item 10(e)(1)(i)(D) of Regulation S-K. Also, you disclose on page 122 that your actual EBITDA relative to performance vesting of options in 2013 was \$46.4 million. Please reconcile this amount to the EBITDA amount disclosed on page 13 in your reconciliation of net income (loss) to Adjusted EBITDA.

Management’s Discussion and Analysis of Financial Condition and Results of Operations – General, page 52

16. Please provide the quantitative disclosures about market risk using one of the three disclosure alternatives required by Rule 305(a) of Regulation S-K and provide qualitative information describing your primary market risk within each category, as required by Rule 305(b)(i) of Regulation S-K.

Key Factors Affecting Our Results
Growth of DEFINITY, page 54

17. You disclose that DEFINITY is currently your largest, fastest growing and highest margin commercial product. However, the table on page 53 shows that DEFINITY has

the second largest product revenue. Please revise your disclosure to clarify this apparent inconsistency.

Global Isotope Supply, page 54

18. During Nordion's shutdown period, you do not currently believe that you will be able to supply all of your standing order customer demand for Xenon during the outage. Please revise your disclosure to quantify the effect this supply issue will have on your results of operations, financial condition and cash flows.

Operating Results

Years ended December 31, 2013, 2012 and 2011, page 57

Revenues, page 57

19. We note you present the break out of the total U.S. revenues by product, but you present international revenues in one lump sum. Please tell us and disclose similar breakout of your international revenues by product for all of the periods presented.

Provision (Benefit) for Income Taxes, page 66

20. Please expand your disclosure to discuss the factors that lead to the increase in the valuation allowance in 2011.

Recent Accounting Standards, page 74

21. You disclose the anticipated impact of adopting ASU 2013-11 on your financial statements; however it appears that you have not specifically disclosed your election under Section 107(b) of the JOBS Act. Please revise your disclosure in the applicable section of the filing to state:
- If you have elected to opt out of the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b), include a statement that the election is irrevocable; or
 - If you have elected to use the extended transition period for complying with new or revised accounting standards under Section 102(b)(1), provide a risk factor explaining that this election allows you to delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards apply to private companies. Please state in your risk factor that, as a result of this election, your financial statements may not be comparable to companies that comply with public company effective dates. Include a similar statement in your critical accounting policy disclosures.

Executive and Director Compensation
Outstanding Equity Awards at 2013 Fiscal Year-End, page 125

22. We note that this table appears two pages earlier on page 123. Please remove one of the tables to avoid providing unnecessary duplicative disclosure.

Shares Eligible for Future Sale
Lock-Up Agreements, page 140

23. When available, please file a form of lock-up agreement as an exhibit.

Consolidated Financial Statements
Notes to Consolidated Financial Statements
2. Summary of Significant Accounting Policies
Revenue Recognition, page F-9

24. Please refer to the first amendment to the 2009 license and supply agreement on page F-10 where you disclose that revenue under this arrangement is being recognized at an average selling price as the units are shipped. Since the Agreement required you to deliver a specified number of product unit shipments at various prices please tell us what price is billed to record accounts receivable on the date you ship products to your customer as well as the amounts of revenues and any deferred revenues recorded. Provide us an example journal entry showing how you record the transaction. Also, please provide us your analysis demonstrating that the price of the units shipped is fixed or determinable at the date of shipment and is not contingent on the end-market sale by the customer.

General

If you intend to respond to these comments with an amended draft registration statement, please submit it and any associated correspondence in accordance with the guidance we provide in the Division's October 11, 2012 announcement on the SEC website at <http://www.sec.gov/divisions/corpfin/cfannouncements/drsfilingprocedures101512.htm>.

Please keep in mind that we may publicly post filing review correspondence in accordance with our December 1, 2011 policy (<http://www.sec.gov/divisions/corpfin/cfannouncements/edgarcorrespondence.htm>). If you intend to use Rule 83 (17 CFR 200.83) to request confidential treatment of information in the correspondence you submit on EDGAR, please properly mark that information in each of your confidential submissions to us so we do not repeat or refer to that information in our comment letters to you.

You may contact Donald Abbott at (202) 551-3608 or Andrew Mew at (202) 551-3377 if you have questions regarding comments on the financial statements and related matters. Please

Michael P. Duffy
Lantheus MI Holdings, Inc.
April 17, 2014
Page 6

contact Christina De Rosa at (202) 551-3577, John Krug at (202) 551-3862 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Heather Emmel
Weil, Gotshal & Manges LLP
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New York, NY 10153