

Lantheus Holdings, Inc.  
Form S-1/A  
August 11, 2014

As filed with the Securities and Exchange Commission on August 11, 2014

Registration No. 333-196998

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

Amendment No. 4 to

**FORM S-1**

REGISTRATION STATEMENT UNDER THE  
SECURITIES ACT OF 1933

**Lantheus Holdings, Inc.**

(Exact name of registrant as specified in its charter)

<b>Delaware</b>	<b>2835</b>	<b>35-2318913</b>
(State or Other Jurisdiction of Incorporation or Organization)	(Primary Standard Industrial Classification Code Number)	(IRS Employer Identification No.)

**331 Treble Cove Road**  
**North Billerica, Massachusetts 01862**

**(978) 671-8001**

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(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Michael P. Duffy**

**Vice President, General Counsel and Secretary**

**331 Treble Cove Road, Building 600-2**

**North Billerica, Massachusetts 01862**

**(978) 671-8408**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

*Copies to:*

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**Approximate date of commencement of proposed sale to the public:** As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, or the Securities Act, check the following box. "

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. "

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. "

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If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. "

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "accelerated filer," "large accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer "

Accelerated filer "

Non-accelerated filer

Smaller reporting company "

(Do not check if a smaller

reporting company)

**The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act or until the Registration Statement shall become effective on such date as the Commission acting pursuant to said Section 8(a), may determine.**

**EXPLANATORY NOTE**

Prior to the consummation of this offering, we will enter into a corporate reorganization, whereby our direct, wholly-owned subsidiary, Lantheus MI Intermediate, Inc. will merge with and into us. See Prospectus Summary Corporate Reorganization in the accompanying prospectus.

This Amendment No. 4 is being filed solely for the purpose of filing a revised Exhibit 4.1 and 5.1.

**PART II****INFORMATION NOT REQUIRED IN PROSPECTUS****Item 13. Other Expenses of Issuance and Distribution.**

The expenses, other than underwriting commissions, expected to be incurred by Lantheus Holdings, Inc., or the Registrant, in connection with the issuance and distribution of the securities being registered under this Registration Statement are estimated to be as follows:

Securities and Exchange Commission Registration Fee	\$ 20,572
Financial Industry Regulatory Authority, Inc. Filing Fee	\$ 24,459
NASDAQ Application and Listing Fee	\$ 225,000
Printing and Engraving	\$ 155,000
Legal Fees and Expenses	\$ 1,000,000
Accounting Fees and Expenses	\$ 475,000
Blue Sky Fees and Expenses	\$ 27,500
Transfer Agent and Registrar Fees	\$ 5,000
Miscellaneous	\$ 21,469
 Total	 \$ 1,954,000

**Item 14. Indemnification of Directors and Officers.**

The Registrant is governed by the Delaware General Corporation Law, or DGCL. Section 145 of the DGCL provides that a corporation may indemnify any person, including an officer or director, who was or is, or is threatened to be made, a party to any threatened, pending or completed legal action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person was or is an officer, director, employee or agent of such corporation or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided such officer, director, employee or agent acted in good faith and in a manner such person reasonably believed to be in, or not opposed to, the corporation's best interest and, for criminal proceedings, had no reasonable cause to believe that such person's conduct was unlawful. A Delaware corporation may indemnify any person, including an officer or director, who was or is, or is threatened to be made, a party to any threatened, pending or contemplated action or suit by or in the right of such corporation, under the same conditions, except that such indemnification is limited to expenses (including attorneys' fees) actually and reasonably incurred by such person, and except that no indemnification is permitted without judicial approval if such person is adjudged to be liable to such corporation. Where an officer or director of a corporation is successful, on the merits or otherwise, in the defense of any action, suit or proceeding referred to above, or any claim, issue or matter therein, the corporation must indemnify that person against the expenses (including attorneys' fees) which such officer or director actually and reasonably incurred in connection therewith.

The Registrant's certificate of incorporation authorizes the indemnification of its officers and directors, consistent with Section 145 of the DGCL. Reference is made to Section 102(b)(7) of the DGCL, which enables a corporation in its original certificate of incorporation or an amendment thereto to eliminate or limit the personal liability of a director for violations of the director's fiduciary duty, except (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) pursuant to Section 174 of the DGCL, which provides for liability of directors for unlawful payments of dividends of unlawful stock purchase or redemptions or (iv) for any transaction from which a director derived an improper personal

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benefit. As permitted by the DGCL, we have included in our certificate of incorporation a provision to eliminate the personal liability of our directors for

II-1

monetary damages for breach of their fiduciary duties as directors, subject to certain exceptions. In addition, our certificate of incorporation and bylaws provide that we are required to indemnify our officers and directors under certain circumstances, including those circumstances in which indemnification would otherwise be discretionary, and we are required to advance expenses to our officers and directors as incurred in connection with proceedings against them for which they may be indemnified.

The Registrant intends to enter into indemnification agreements with each of its directors. These agreements, among other things, will require the Registrant to indemnify each director to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, fines and settlement amounts incurred by the director in any action or proceeding, including any action or proceeding by or in right of the Registrant, arising out of the person's services as a director.

The Registrant maintains directors' and officers' liability insurance for the benefit of its directors and officers.

The proposed form of Underwriting Agreement to be filed as Exhibit 1.1 to this Registration Statement provides for indemnification to the Registrant's directors and officers by the underwriters against certain liabilities.

#### **Item 15. Recent Sales of Unregistered Securities.**

During the three years preceding the filing of this registration statement, the Registrant has not issued its securities without registration under the Securities Act except as described below. After the effectiveness of this Registration Statement on Form S-1 and prior to the consummation of the Registrant's initial public offering, the Registrant will effect a corporate reorganization, whereby its direct, wholly-owned subsidiary, Lantheus MI Intermediate, Inc. (the direct parent of Lantheus Medical Imaging, Inc.) will merge with and into the Registrant, and the Registrant will be the surviving entity of the merger, and each share of the Registrant's common stock outstanding immediately prior to the merger (other than shares held in treasury) will be converted into the right to receive 0.355872 shares of the Registrant newly issued common stock, with any fractional shares rounded down (which equates to a 1-for-0.355872 reverse stock split), and shares held in treasury will be cancelled and retired. The following share numbers and prices of the Registrant's common stock are based upon an assumed initial public offering price of \$13.50 (the midpoint of the price range set forth on the cover of this prospectus) and the foregoing merger and reverse stock split:

1. On September 9, 2011, the Registrant issued 1,647 shares of common stock at an exercise price of \$19.22 per share pursuant to a cashless exercise of options held by a former employee. On March 13, 2012, the Registrant repurchased the 1,647 shares at a price of \$19.22 per share.
2. On April 27, 2012, the Registrant issued 1,595 shares of common stock at an exercise price of \$5.62 per share pursuant to a cashless exercise of options held by a former employee. On June 29, 2012, the Registrant repurchased the 1,595 shares at a price of \$23.04 per share.
3. On May 1, 2012, the Registrant issued 941 shares of common stock at an exercise price of \$5.62 per share pursuant to a cashless exercise of options held by a former employee. On June 29, 2012, the Registrant repurchased the 941 shares at a price of \$23.04 per share.
4. On June 2, 2012, the Registrant sold 4,340 shares of common stock at a price of \$23.04 per share to a new director of the Registrant.
- 5.

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On July 10, 2012, the Registrant issued 695 shares of common stock at an exercise price of \$19.22 per share pursuant to a cashless exercise of options held by a former employee. On February 4, 2013, the Registrant repurchased the 695 shares at a price of 21.16 per share.

6. On October 12, 2012, the Registrant 21,352 sold shares of common stock at a price of \$21.13 per share to a new director of the Registrant.
7. On March 22, 2013, the Registrant issued 120,163 shares of common stock at an exercise price of \$5.62 per share pursuant to a cashless exercise of options held by a former employee.



8. On May 8, 2013, the Registrant sold 20,933 shares of common stock at a price of \$19.11 per share to a new officer of the Registrant.
9. On May 14, 2013, the Registrant issued 39,169 shares of common stock at an exercise price of \$5.62 per share pursuant to a cashless exercise of options held by a former employee.
10. On February 24, 2013, the Registrant issued 4,073 shares of common stock at an exercise price of \$5.62 per share pursuant to a cashless exercise of options held by a former employee.
11. On February 27, 2014, the Registrant issued 2,219 shares of common stock at an exercise price of \$5.62 per share pursuant to a cashless exercise of options held by a former employee.

The issuances of the above securities were deemed to be exempt from registration under the Securities Act in reliance upon Section 4(2) of the Securities Act or Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer not involving any public offering or pursuant to benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. All recipients had adequate access, through their relationships with Lantheus Holdings, Inc., to information about Lantheus Holdings, Inc.

#### Item 16. Exhibits and Financial Statement Schedules

##### (a) Exhibits

Exhibit	Description
1.1	Form of Underwriting Agreement.
3.1	Form of Amended and Restated Certificate of Incorporation of Lantheus Holdings, Inc.
3.2	Form of Amended and Restated Bylaws of Lantheus Holdings, Inc.
4.1*	Form of Common Stock Certificate.
4.2	Indenture, dated as of May 10, 2010, among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC as guarantors, and Wilmington Trust FSB, as trustee (incorporated by reference to Exhibit 4.1 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
4.3	First Supplemental Indenture, dated as of March 14, 2011, among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC as guarantors, and Wilmington Trust FSB, as trustee (incorporated by reference to Exhibit 4.1 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on March 16, 2011 (file number 333-169785)).
4.4	Second Supplemental Indenture, dated as of March 21, 2011, among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC as guarantors, and Wilmington Trust FSB, as trustee (incorporated by reference to Exhibit 4.1 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on March 21, 2011 (file number 333-169785)).
4.3	Registration Rights Agreement, dated May 10, 2010, by and among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC, as guarantors, and Jefferies & Company, Inc. (incorporated by reference to Exhibit 4.2 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
4.5	Registration Rights Agreement, dated March 21, 2011, by and among Lantheus Medical Imaging, Inc., Jefferies & Company, Inc., as representative of the initial purchasers and the guarantors party thereto (incorporated by reference to

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Exhibit 4.2 to Lantheus Medical Imaging, Inc.'s Current Report on Form 8-K filed with the Commission on March 21, 2011 (file number 333-169785)).

II-3

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<b>Exhibit</b>	<b>Description</b>
4.6	Form of 9.750% Senior Notes due 2017 (included in Exhibit 4.2).
5.1*	Opinion of Weil, Gotshal & Manges LLP.
10.1	Advisory Services and Monitoring Agreement, dated January 8, 2007, by and between ACP Lantern Acquisition, Inc. (now known as Lantheus Medical Imaging, Inc.) and Avista Capital Holdings, L.P. (incorporated by reference to Exhibit 10.3 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.2	Amended and Restated Shareholders Agreement, dated as of February 26, 2008 among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain management shareholders named therein (incorporated by reference to Exhibit 10.4 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.3	Employee Shareholders Agreement, dated as of May 8, 2008, among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain employee shareholders named therein (incorporated by reference to Exhibit 10.5 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.4	Sales Agreement, dated as of April 1, 2009, between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.9 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on December 23, 2010 (file number 333-169785)).
10.5	Amendment No. 1 to Sales Agreement, dated as of January 1, 2010, between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.10 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on December 1, 2010 (file number 333-169785)).
10.6	Amendment No. 2 to Sales Agreement, dated as of January 1, 2010, between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc.'s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2011 (file number 333-169785)).
10.7	Purchase and Supply Agreement, dated as of April 1, 2010, between Lantheus Medical Imaging, Inc. and Nordion (Canada) Inc. (formerly known as MDS Nordion, a division of MDS (Canada) Inc.) (incorporated by reference to Exhibit 10.12 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on December 23, 2010 (file number 333-169785)).
10.8	Amendment No. 1 to the Purchase and Supply Agreement, dated as of December 1, 2010, between Lantheus Medical Imaging, Inc. and Nordion (Canada) Inc. (incorporated by reference to Exhibit 10.13 to Lantheus Medical Imaging, Inc.'s Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (file number 333-169785)).
10.9	Amendment No. 1 to the Amended and Restated Supply Agreement (Thallium and Generators), dated as of December 29, 2009 between Lantheus Medical Imaging, Inc. and Cardinal Health 414, LLC (incorporated by reference to Exhibit 10.26 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on December 1, 2010 (file number 333-169785)).
10.10	Amended and Restated Supply Agreement (Thallium and Generators), dated October 1, 2004, by and between Lantheus Medical Imaging, Inc. and Cardinal Health 414, LLC (incorporated by reference to Exhibit 10.14 to Lantheus Medical Imaging, Inc.'s Registration Statement on Form S-4 filed with the Commission on December 23, 2010 (file number 333-169785)).

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<b>Exhibit</b>	<b>Description</b>
10.11	Distribution Agreement, dated as of October 31, 2001, by and between Bristol-Myers Squibb Pharma Company (now known as Lantheus Medical Imaging, Inc.) and Medi-Physics Inc., doing business as Amersham Health (incorporated by reference to Exhibit 10.16 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 29, 2010 (file number 333-169785)).
10.12	First Amendment to Distribution Agreement, dated as of January 1, 2005, by and between Bristol-Myers Squibb Medical Imaging, Inc. (formerly known as Bristol-Myers Squibb Pharma Company and now known as Lantheus Medical Imaging, Inc.) and Medi-Physics Inc., doing business as G.E. Healthcare (incorporated by reference to Exhibit 10.17 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 1, 2010 (file number 333-169785)).
10.13	Lantheus Holdings, Inc. 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.18 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.14	Amendment No. 1 to Lantheus Holdings, Inc. 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.19 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.15	Amendment No. 2 to Lantheus Holdings, Inc. 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.20 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.16	Form of Option Grant Award Agreement (incorporated by reference to Exhibit 10.21 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.17	Lantheus Medical Imaging, Inc. Severance Plan Policy (incorporated by reference to Exhibit 10.24 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.18	Second Amendment, effective as of January 1, 2012, to the Distribution Agreement, dated as of October 31, 2001, by and between Lantheus Medical Imaging, Inc., formerly known as Bristol-Myers Squibb Medical Imaging, Inc., and Medi-Physics, Inc., doing business as G.E. Healthcare Inc. (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012 (file number 333-169785)).
10.19	Manufacturing and Supply Agreement, dated as of February 1, 2012, for the manufacture of DEFINITY® by and between Lantheus Medical Imaging, Inc. and Jubilant HollisterStier LLC (incorporated by reference to Exhibit 10.2 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012 (file number 333-169785)).
10.20	First Amendment to Manufacturing and Supply Agreement, dated as of May 3, 2012, for the manufacture of DEFINITY® by and between Lantheus Medical Imaging, Inc. and Jubilant HollisterStier LLC (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2012 (file number 333-169785)).
10.21	Amendment No. 2, dated as of October 15, 2012, to the Purchase and Supply Agreement between Lantheus Medical Imaging, Inc. and Nordion (Canada) Inc. (incorporated by reference to Exhibit 10.52 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).

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<b>Exhibit</b>	<b>Description</b>
10.22	Amendment No. 3, effective as of October 1, 2012, to Sales Agreement between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.53 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).
10.23	Amendment No. 2, effective as of December 27, 2012, to the Amended and Restated Supply Agreement (Thallium and Generators) between Lantheus Medical Imaging, Inc. and Cardinal Health 414, LLC (incorporated by reference to Exhibit 10.54 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).
10.24	Separation Agreement, dated February 19, 2013, by and between Lantheus Medical Imaging, Inc. and Don Kiepert (incorporated by reference to Exhibit 10.57 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).
10.25	Fission Mo-99 Supply Agreement, effective January 1, 2013, by and between Lantheus Medical Imaging, Inc. and the Institut National des Radioelements (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2013 (file number 333-169785)).
10.26	Lantheus Holdings, Inc. 2013 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on May 6, 2013 (file number 333-169785)).
10.27	Form of Employee Option Grant Award Agreement (incorporated by reference to Exhibit 10.2 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on May 6, 2013 (file number 333-169785)).
10.28	Form of Non-Employee Director Option Grant Award Agreement (incorporated by reference to Exhibit 10.3 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on May 6, 2013 (file number 333-169785)).
10.29	Employment Agreement, dated May 8, 2013, by and between Lantheus Medical Imaging, Inc. and Jeffrey Bailey (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2013 (file number 333-169785)).
10.30	Amended and Restated Credit Agreement date as of July 3, 2013, by and among Lantheus Medical Imaging Inc., Lantheus MI Intermediate Inc., Lantheus MI Real Estate, LLC, the lenders from time to time party thereto, and Wells Fargo Bank, National Association collateral agent and administrative agent and as sole lead arranger, book runner and syndication agent (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2013 (file number 333-169785)).
10.31	Employment Agreement, dated June 4, 2014, by and between Lantheus Medical Imaging, Inc. and John K. Bakewell.
10.32	Employment Agreement, effective August 12, 2013, by and between Lantheus Medical Imaging, Inc. and Mary Anne Heino (incorporated by reference to Exhibit 10.47 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2013 (file number 333-169785)).
10.33	Employment Agreement, effective August 12, 2013, by and between Lantheus Medical Imaging, Inc. and Cesare Orlandi (incorporated by reference to Exhibit 10.48 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2013 (file number 333-169785)).

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<b>Exhibit</b>	<b>Description</b>
10.34	Amendment to Amended and Restated Credit Agreement, dated June 24, 2014, by and among Lantheus Medical Imaging Inc., Lantheus MI Intermediate Inc., Lantheus MI Real Estate, LLC, the lenders from time to time party thereto, and Wells Fargo Bank, National Association collateral agent and administrative agent and as sole lead arranger, book runner and syndication agent.
10.35	Form of Amendment to Amended and Restated Shareholders Agreement, among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain management shareholders named therein.
10.36	Form of Amendment to Employee Shareholders Agreement, among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain employee shareholders named therein.
10.37	2014 Equity Incentive Plan of Lantheus Holdings, Inc.
10.38	Form of 2014 Restricted Stock Agreement of Lantheus Holdings, Inc.
10.39	Form of 2014 Option Award Agreement of Lantheus Holdings, Inc.
10.40	Form of Amendment to the Lantheus Holdings, Inc. 2013 Equity Incentive Plan.
10.41	Form of Amendment to the Lantheus Holdings, Inc. 2008 Equity Incentive Plan.
21.1	Subsidiaries of Lantheus Holdings, Inc.
23.1	Consent of Independent Registered Public Accounting Firm, Deloitte & Touche LLP.
23.2*	Consent of Weil, Gotshal & Manges LLP (included as part of Exhibit 5.1).
24.1	Power of Attorney (included as part of the signature pages hereto).

\* Filed herewith.

Confidential treatment requested as to certain portions, which portions shall be filed separately with the Securities and Exchange Commission.

### (b) Financial Statement Schedules

None.

### Item 17. Undertakings

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreements, certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions referenced in Item 14 of this registration statement, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer, or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered hereunder, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.



The undersigned Registrant hereby undertakes that:

- (1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
- (2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) For the purpose of determining liability under the Securities Act of 1933 to any purchaser, if the Registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.
- (4) For the purpose of determining liability of the Registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned Registrant undertakes that in a primary offering of securities of the undersigned Registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned Registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
  - (a) Any preliminary prospectus or prospectus of the undersigned Registrant relating to the offering required to be filed pursuant to Rule 424;
  - (b) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned Registrant or used or referred to by the undersigned Registrant;
  - (c) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned Registrant or its securities provided by or on behalf of the undersigned Registrant; and
  - (d) Any other communication that is an offer in the offering made by the undersigned Registrant to the purchaser.



**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this Amendment No. 4 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of North Billerica, Commonwealth of Massachusetts, on August 11, 2014.

LANTHEUS HOLDINGS, INC.

By: /s/ Michael P. Duffy  
 Name: Michael P. Duffy  
 Title: Vice President, General Counsel and Secretary

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities indicated on August 11, 2014.

Signature	Title	Date
*	President, Chief Executive Officer and Director	August 11, 2014
Jeffrey Bailey	(Principal Executive Officer)	
*	Chief Financial Officer (Principal Financial Officer)	August 11, 2014
John K. Bakewell		
*	Vice President, Finance	August 11, 2014
Jack Crowley	(Principal Accounting Officer)	
*	Chairman of the Board of Directors	August 11, 2014
Brian Markison		
*	Director	August 11, 2014
David Burgstahler		
*	Director	August 11, 2014
Samuel Leno		
*	Director	August 11, 2014
Patrick O Neill		
*	Director	August 11, 2014
Sriram Venkataraman		

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\*By: /s/ Michael P. Duffy  
Michael P. Duffy  
  
Attorney-in-Fact

**Exhibit Index**

<b>Exhibit</b>	<b>Description</b>
1.1	Form of Underwriting Agreement.
3.1	Form of Amended and Restated Certificate of Incorporation of Lantheus Holdings, Inc.
3.2	Form of Amended and Restated Bylaws of Lantheus Holdings, Inc.
4.1*	Form of Common Stock Certificate.
4.2	Indenture, dated as of May 10, 2010, among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC as guarantors, and Wilmington Trust FSB, as trustee (incorporated by reference to Exhibit 4.1 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
4.3	First Supplemental Indenture, dated as of March 14, 2011, among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC as guarantors, and Wilmington Trust FSB, as trustee (incorporated by reference to Exhibit 4.1 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on March 16, 2011 (file number 333-169785)).
4.4	Second Supplemental Indenture, dated as of March 21, 2011, among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC as guarantors, and Wilmington Trust FSB, as trustee (incorporated by reference to Exhibit 4.1 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on March 21, 2011 (file number 333-169785)).
4.3	Registration Rights Agreement, dated May 10, 2010, by and among Lantheus Medical Imaging, Inc., Lantheus MI Intermediate, Inc. and Lantheus MI Real Estate, LLC, as guarantors, and Jefferies & Company, Inc. (incorporated by reference to Exhibit 4.2 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
4.5	Registration Rights Agreement, dated March 21, 2011, by and among Lantheus Medical Imaging, Inc., Jefferies & Company, Inc., as representative of the initial purchasers and the guarantors party thereto (incorporated by reference to Exhibit 4.2 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on March 21, 2011 (file number 333-169785)).
4.6	Form of 9.750% Senior Notes due 2017 (included in Exhibit 4.2).
5.1*	Opinion of Weil, Gotshal & Manges LLP.
10.1	Advisory Services and Monitoring Agreement, dated January 8, 2007, by and between ACP Lantern Acquisition, Inc. (now known as Lantheus Medical Imaging, Inc.) and Avista Capital Holdings, L.P. (incorporated by reference to Exhibit 10.3 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.2	Amended and Restated Shareholders Agreement, dated as of February 26, 2008 among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain management shareholders named therein (incorporated by reference to Exhibit 10.4 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.3	Employee Shareholders Agreement, dated as of May 8, 2008, among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain employee shareholders named therein (incorporated by reference to Exhibit 10.5 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).

## Edgar Filing: Lantheus Holdings, Inc. - Form S-1/A

<b>Exhibit</b>	<b>Description</b>
10.4	Sales Agreement, dated as of April 1, 2009, between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.9 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 23, 2010 (file number 333-169785)).
10.5	Amendment No. 1 to Sales Agreement, dated as of January 1, 2010, between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.10 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 1, 2010 (file number 333-169785)).
10.6	Amendment No. 2 to Sales Agreement, dated as of January 1, 2010, between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2011 (file number 333-169785)).
10.7	Purchase and Supply Agreement, dated as of April 1, 2010, between Lantheus Medical Imaging, Inc. and Nordion (Canada) Inc. (formerly known as MDS Nordion, a division of MDS (Canada) Inc.) (incorporated by reference to Exhibit 10.12 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 23, 2010 (file number 333-169785)).
10.8	Amendment No. 1 to the Purchase and Supply Agreement, dated as of December 1, 2010, between Lantheus Medical Imaging, Inc. and Nordion (Canada) Inc. (incorporated by reference to Exhibit 10.13 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (file number 333-169785)).
10.9	Amendment No. 1 to the Amended and Restated Supply Agreement (Thallium and Generators), dated as of December 29, 2009 between Lantheus Medical Imaging, Inc. and Cardinal Health 414, LLC (incorporated by reference to Exhibit 10.26 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 1, 2010 (file number 333-169785)).
10.10	Amended and Restated Supply Agreement (Thallium and Generators), dated October 1, 2004, by and between Lantheus Medical Imaging, Inc. and Cardinal Health 414, LLC (incorporated by reference to Exhibit 10.14 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 23, 2010 (file number 333-169785)).
10.11	Distribution Agreement, dated as of October 31, 2001, by and between Bristol-Myers Squibb Pharma Company (now known as Lantheus Medical Imaging, Inc.) and Medi-Physics Inc., doing business as Amersham Health (incorporated by reference to Exhibit 10.16 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 29, 2010 (file number 333-169785)).
10.12	First Amendment to Distribution Agreement, dated as of January 1, 2005, by and between Bristol-Myers Squibb Medical Imaging, Inc. (formerly known as Bristol-Myers Squibb Pharma Company and now known as Lantheus Medical Imaging, Inc.) and Medi-Physics Inc., doing business as G.E. Healthcare (incorporated by reference to Exhibit 10.17 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on December 1, 2010 (file number 333-169785)).
10.13	Lantheus Holdings, Inc. 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.18 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.14	Amendment No. 1 to Lantheus Holdings, Inc. 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.19 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.15	Amendment No. 2 to Lantheus Holdings, Inc. 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.20 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).

## Edgar Filing: Lantheus Holdings, Inc. - Form S-1/A

<b>Exhibit</b>	<b>Description</b>
10.16	Form of Option Grant Award Agreement (incorporated by reference to Exhibit 10.21 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.17	Lantheus Medical Imaging, Inc. Severance Plan Policy (incorporated by reference to Exhibit 10.24 to Lantheus Medical Imaging, Inc. s Registration Statement on Form S-4 filed with the Commission on October 6, 2010 (file number 333-169785)).
10.18	Second Amendment, effective as of January 1, 2012, to the Distribution Agreement, dated as of October 31, 2001, by and between Lantheus Medical Imaging, Inc., formerly known as Bristol-Myers Squibb Medical Imaging, Inc., and Medi-Physics, Inc., doing business as G.E. Healthcare Inc. (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012 (file number 333-169785)).
10.19	Manufacturing and Supply Agreement, dated as of February 1, 2012, for the manufacture of DEFINITY® by and between Lantheus Medical Imaging, Inc. and Jubilant HollisterStier LLC (incorporated by reference to Exhibit 10.2 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012 (file number 333-169785)).
10.20	First Amendment to Manufacturing and Supply Agreement, dated as of May 3, 2012, for the manufacture of DEFINITY® by and between Lantheus Medical Imaging, Inc. and Jubilant HollisterStier LLC (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2012 (file number 333-169785)).
10.21	Amendment No. 2, dated as of October 15, 2012, to the Purchase and Supply Agreement between Lantheus Medical Imaging, Inc. and Nordion (Canada) Inc. (incorporated by reference to Exhibit 10.52 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).
10.22	Amendment No. 3, effective as of October 1, 2012, to Sales Agreement between Lantheus Medical Imaging, Inc. and NTP Radioisotopes (Pty) Ltd. (incorporated by reference to Exhibit 10.53 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).
10.23	Amendment No. 2, effective as of December 27, 2012, to the Amended and Restated Supply Agreement (Thallium and Generators) between Lantheus Medical Imaging, Inc. and Cardinal Health 414, LLC (incorporated by reference to Exhibit 10.54 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).
10.24	Separation Agreement, dated February 19, 2013, by and between Lantheus Medical Imaging, Inc. and Don Kiepert (incorporated by reference to Exhibit 10.57 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2012 (file number 333-169785)).
10.25	Fission Mo-99 Supply Agreement, effective January 1, 2013, by and between Lantheus Medical Imaging, Inc. and the Institut National des Radioelements (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2013 (file number 333-169785)).
10.26	Lantheus Holdings, Inc. 2013 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on May 6, 2013 (file number 333-169785)).
10.27	Form of Employee Option Grant Award Agreement (incorporated by reference to Exhibit 10.2 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on May 6, 2013 (file number 333-169785)).
10.28	Form of Non-Employee Director Option Grant Award Agreement (incorporated by reference to Exhibit 10.3 to Lantheus Medical Imaging, Inc. s Current Report on Form 8-K filed with the Commission on May 6, 2013 (file number 333-169785)).

## Edgar Filing: Lantheus Holdings, Inc. - Form S-1/A

<b>Exhibit</b>	<b>Description</b>
10.29	Employment Agreement, dated May 8, 2013, by and between Lantheus Medical Imaging, Inc. and Jeffrey Bailey (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2013 (file number 333-169785)).
10.30	Amended and Restated Credit Agreement date as of July 3, 2013, by and among Lantheus Medical Imaging Inc., Lantheus MI Intermediate Inc., Lantheus MI Real Estate, LLC, the lenders from time to time party thereto, and Wells Fargo Bank, National Association collateral agent and administrative agent and as sole lead arranger, book runner and syndication agent (incorporated by reference to Exhibit 10.1 to Lantheus Medical Imaging, Inc. s Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2013 (file number 333-169785)).
10.31	Employment Agreement, dated June 4, 2014, by and between Lantheus Medical Imaging, Inc. and John K. Bakewell.
10.32	Employment Agreement, effective August 12, 2013, by and between Lantheus Medical Imaging, Inc. and Mary Anne Heino (incorporated by reference to Exhibit 10.47 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2013 (file number 333-169785)).
10.33	Employment Agreement, effective August 12, 2013, by and between Lantheus Medical Imaging, Inc. and Cesare Orlandi (incorporated by reference to Exhibit 10.48 to Lantheus Medical Imaging, Inc. s Annual Report on Form 10-K for the year ended December 31, 2013 (file number 333-169785)).
10.34	Amendment to Amended and Restated Credit Agreement, dated June 24, 2014, by and among Lantheus Medical Imaging Inc., Lantheus MI Intermediate Inc., Lantheus MI Real Estate, LLC, the lenders from time to time party thereto, and Wells Fargo Bank, National Association collateral agent and administrative agent and as sole lead arranger, book runner and syndication agent.
10.35	Form of Amendment to Amended and Restated Shareholders Agreement, among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain management shareholders named therein.
10.36	Form of Amendment to Employee Shareholders Agreement, among Lantheus Holdings, Inc., Avista Capital Partners, L.P., Avista Capital Partners (Offshore), L.P., ACP-Lantern Co-Invest, LLC and certain employee shareholders named therein.
10.37	2014 Equity Incentive Plan of Lantheus Holdings, Inc.
10.38	Form of 2014 Restricted Stock Agreement of Lantheus Holdings, Inc.
10.39	Form of 2014 Option Award Agreement of Lantheus Holdings, Inc.
10.40	Form of Amendment to the Lantheus Holdings, Inc. 2013 Equity Incentive Plan.
10.41	Form of Amendment to the Lantheus Holdings, Inc. 2008 Equity Incentive Plan.
21.1	Subsidiaries of Lantheus Holdings, Inc.
23.1	Consent of Independent Registered Public Accounting Firm, Deloitte & Touche LLP.
23.2*	Consent of Weil, Gotshal & Manges LLP (included as part of Exhibit 5.1).
24.1	Power of Attorney (included as part of the signature pages hereto).

\* Filed herewith.

Confidential treatment requested as to certain portions, which portions shall be filed separately with the Securities and Exchange Commission.