

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

**FORM S-8  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933**

**Lantheus Holdings, Inc.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**35-2318913**  
(I.R.S. Employer  
Identification No.)

**331 Treble Cove Road**  
**North Billerica, Massachusetts 01862**  
(Address of Principal Executive Offices)

**01862**  
(Zip Code)

**Lantheus Holdings, Inc. 2017 Employee Stock Purchase Plan**  
(Full Title of Plan)

**Michael P. Duffy**  
**Senior Vice President, Strategy and Business Development,**  
**General Counsel and Secretary**  
**331 Treble Cove Road, Building 600-2**  
**North Billerica, Massachusetts 01862**  
(Name and address of agent for service)

**(978) 671-8408**  
(Telephone number, including area code, of agent for service)

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

Large Accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

**CALCULATION OF REGISTRATION FEE**

Title of Securities to be Registered	Amount to be Registered (1)	Proposed Maximum Offering Price Per Share (2)	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, \$0.01 par value per share, reserved for issuance pursuant to the Lantheus Holdings, Inc. 2017 Employee Stock Purchase Plan	250,000	\$15.675	\$3,918,750	\$454.19

(1) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement also covers an indeterminate number of securities that may become issuable under the 2017 Employee Stock Purchase Plan as a result of any stock splits, stock dividends, recapitalizations or similar transactions.

(2) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) and 457(h) under the Securities Act, based on the average of the high and low sales prices of the Registrant's common stock on The NASDAQ Global Market on August 17, 2017.

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## PART I

### INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

Information required by Part I to be contained in the Section 10(a) prospectus is omitted from this Registration Statement in accordance with Rule 428 under the Securities Act of 1933, as amended (the "Securities Act"), and the Note to Part I of Form S-8.

## PART II

### INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

#### **Item 3. Incorporation of Documents by Reference.**

The following documents are incorporated by reference herein:

- (a) the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the Securities and Exchange Commission (the "SEC") pursuant to the Securities Exchange Act of 1934, as amended (the "Exchange Act"), on February 23, 2017;
- (b) the Registrant's Quarterly Reports on Form 10-Q, for the quarterly period ended March 31, 2017, filed with the SEC on May 2, 2017, and for the quarterly period ended June 30, 2017, filed with the SEC on August 1, 2017;
- (c) the Registrant's Current Reports on Form 8-K, filed with the SEC on January 26, 2017, February 21, 2017 (with respect to Item 8.01 only), March 15, 2017, March 30, 2017, April 25, 2017, April 28, 2017, May 5, 2017, June 16, 2017 and August 14, 2017; and
- (d) the description of the Registrant's common stock, which is contained in the Registrant's registration statement on Form 8-A filed with the SEC under Section 12 of the Exchange Act on July 25, 2014, including any amendments or reports filed for the purpose of updating such description.

All reports and other documents filed by the Registrant after the date hereof pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment to this Registration Statement that indicates that all securities offered have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated herein by reference and to be part hereof from the date of filing of such report or other document. Any statement contained herein or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any subsequently filed document which also is incorporated or is deemed to be incorporated by reference herein modifies or supersedes such earlier statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute part of this Registration Statement.

#### **Item 4. Description of Securities.**

Not applicable.

#### **Item 5. Interests of Named Experts and Counsel.**

Not applicable.

#### **Item 6. Indemnification of Directors and Officers.**

The Registrant is governed by the Delaware General Corporation Law (the "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 amended and restated 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 benefit. As permitted by the DGCL, we have included in our amended and restated certificate of incorporation a provision to eliminate the personal liability of our directors for monetary damages for breach of their fiduciary duties as directors, subject to certain exceptions. In addition, our amended and restated 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 has entered into indemnification agreements with each of its directors. These agreements, among other things, 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.

**Item 7. Exemption From Registration Claimed.**

Not applicable.

**Item 8. Exhibits.**

See Exhibit Index below.

**Item 9. Undertakings.**

(a) The undersigned Registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:
  - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
  - (ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total

dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

- (iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

*provided, however*, that paragraphs (a)(1)(i) and (a)(1)(ii) above do not apply if the registration statement is on Form S-8 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment 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) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the Registration Statement 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.
  - (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, 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, 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 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.

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant has duly caused this 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 18, 2017.

### Lantheus Holdings, Inc.

By: /s/ Mary Anne Heino

Name: Mary Anne Heino

Title: President and Chief Executive Officer

## POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each of the undersigned constitutes and appoints each of Mary Anne Heino, John Crowley and Michael P. Duffy, each acting alone, her or his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for such person and in her or his name, place and stead, in any and all capacities, to sign this Registration Statement on Form S-8 (including all pre-effective and post-effective amendments and registration statements filed pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, each acting alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming that any such attorney-in-fact and agent, or her or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

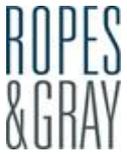
Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Mary Anne Heino</u> Mary Anne Heino	President, Chief Executive Officer and Director (Principal Executive Officer)	August 18, 2017
<u>/s/ John W. Crowley</u> John W. Crowley	Chief Financial Officer (Principal Financial and Accounting Officer)	August 18, 2017
<u>/s/ Brian Markison</u> Brian Markison	Chairman of the Board of Directors	August 18, 2017
<u>/s/ David Burgstahler</u> David Burgstahler	Director	August 18, 2017
<u>/s/ James C. Clemmer</u> James C. Clemmer	Director	August 18, 2017
<u>/s/ Samuel Leno</u> Samuel Leno	Director	August 18, 2017
<u>/s/ Julie H. McHugh</u> Julie H. McHugh	Director	August 18, 2017
<u>/s/ Dr. Frederick Robertson</u> Dr. Frederick Robertson	Director	August 18, 2017
<u>/s/ Dr. Derace Schaffer</u> Dr. Derace Schaffer	Director	August 18, 2017

**EXHIBIT INDEX**

<b><u>EXHIBIT NUMBER</u></b>	<b><u>DESCRIPTION OF EXHIBITS</u></b>	<b><u>INCORPORATED BY REFERENCE</u></b>			
		<b><u>FORM</u></b>	<b><u>FILE NUMBER</u></b>	<b><u>EXHIBIT</u></b>	<b><u>FILING DATE</u></b>
4.1	Amended and Restated Certificate of Incorporation of Lantheus Holdings, Inc.	8-K	001-36569	3.1	June 30, 2015
4.2	Bylaws of Lantheus Holdings, Inc.	8-K	001-36569	3.2	June 30, 2015
4.3	Common Stock Certificate.	8-K	001-36569	4.1	June 30, 2015
4.4	Lantheus Holdings, Inc. 2017 Employee Stock Purchase Plan.	8-K	001-36569	10.2	April 28, 2017
5.1*	Legal Opinion of Ropes & Gray LLP.				
23.1*	Consent of Independent Registered Public Accounting Firm, Deloitte & Touche LLP.				
23.2*	Consent of Ropes & Gray LLP (included as part of Exhibit 5.1).				
24.1*	Power of Attorney (included as part of the signature page hereto).				

\* Filed herewith



ROPES & GRAY LLP  
PRUDENTIAL TOWER  
800 BOYLSTON STREET  
BOSTON, MA 02199-3600  
WWW.ROPESGRAY.COM

August 18, 2017

Lantheus Holdings, Inc.  
331 Treble Cove Road  
North Billerica, MA 01862

Ladies and Gentlemen:

This opinion letter is furnished to you in connection with the registration statement on Form S-8 (the "Registration Statement"), filed by Lantheus Holdings, Inc., a Delaware corporation (the "Company"), on the date hereof, with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Securities Act"), for the registration of 250,000 shares of Common Stock, \$0.01 par value, of the Company (the "Shares"). The Shares are issuable under the Company's 2017 Employee Stock Purchase Plan (the "Plan").

We are familiar with the actions taken by the Company in connection with the adoption of the Plan. We have examined such certificates, documents and records and have made such investigation of fact and such examination of law as we have deemed appropriate in order to enable us to render the opinions set forth herein. In conducting such investigation, we have relied, without independent verification, upon certificates of officers of the Company, public officials and other appropriate persons.

The opinions expressed below are limited to the Delaware General Corporation Law.

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized and, when the Shares have been issued and sold in accordance with the terms of the Plan, the Shares will be validly issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion letter as an exhibit to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ Ropes & Gray LLP

Ropes & Gray LLP

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated February 23, 2017, relating to the financial statements of Lantheus Holdings, Inc. appearing in the Annual Report on Form 10-K of Lantheus Holdings, Inc. for the year ended December 31, 2016.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

August 18, 2017