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

SCHEDULE 14A
Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934

Filed by the Registrant ☒

Filed by a party other than the Registrant ☐

Check the appropriate box:

☐ Preliminary Proxy Statement

☐ **Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**

☐ Definitive Proxy Statement

☐ Definitive Additional Materials

☒ Soliciting Material Pursuant to §240.14a-12

LANTHEUS HOLDINGS, INC.
(Name of Registrant as Specified in its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

☒ No fee required.

☐ Fee paid previously with preliminary materials.

☐ Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a6(i)(1) and 0-11.

This Schedule 14A relates solely to preliminary communications made prior to furnishing security holders of Lantheus Holdings, Inc. ("Lantheus" or the "Company") with a proxy statement related to a proposed transaction in which Coco Merger Sub Inc. ("Merger Sub"), a wholly owned subsidiary of Curium US Holdings LLC ("Parent"), will be merged with and into the Company, with the Company being the surviving corporation and continuing as a wholly owned subsidiary of Parent (the "Merger"), upon the terms and subject to the conditions set forth in the Agreement and Plan of Merger, dated August 3, 2026, among the Company, Parent, and Merger Sub (the "Merger Agreement").

This Schedule 14A filing consists of the following documents relating to the Merger and the other transactions contemplated by the Merger Agreement:

Exhibit 99.1: An email from the Company's CEO to its vendors and suppliers on August 13, 2026.

* * *

Additional Information and Where to Find It

In connection with the proposed acquisition of the Company by Parent, the Company intends to file a preliminary and definitive proxy statement. The definitive proxy statement and proxy card will be delivered to the stockholders of the Company in advance of the special meeting relating to the proposed acquisition. This document is not a substitute for the proxy statement or any other document that may be filed by the Company with the Securities and Exchange Commission (the "SEC"). THE COMPANY'S STOCKHOLDERS AND INVESTORS ARE URGED TO READ THE DEFINITIVE PROXY STATEMENT IN ITS ENTIRETY WHEN IT BECOMES AVAILABLE AND ANY OTHER DOCUMENTS FILED BY EACH OF PARENT AND THE COMPANY WITH THE SEC IN CONNECTION WITH THE PROPOSED ACQUISITION OR INCORPORATED BY REFERENCE THEREIN BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED ACQUISITION AND THE PARTIES TO THE PROPOSED ACQUISITION. Investors and security holders will be able to obtain a free copy of the proxy statement and such other documents containing important information about the Company and Parent, once such documents are filed with the SEC, through the website maintained by the SEC at www.sec.gov. The Company makes available free of charge at its website at https://investor.lantheus.com/ copies of materials it files with, or furnishes to, the SEC.

Participants in the Solicitation

The Company, Parent and certain of their respective directors, executive officers and employees may be deemed to be participants in the solicitation of proxies from the stockholders of the Company in connection with the proposed acquisition. Information regarding the Company's directors and executive officers is contained in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2025, which was filed with the SEC on February 26, 2026, and its definitive proxy statement for the 2026 annual meeting of its stockholders, which was filed with the SEC on March 20, 2026. To the extent holdings of the Company's securities by its directors or executive officers have changed since the amounts set forth in such 2026 proxy statement, such changes have been or will be reflected on Initial Statements of Beneficial Ownership of Securities on Form 3 or Statements of Changes in Beneficial Ownership of Securities on Form 4 filed with the SEC. Additional information regarding the identity of potential participants, and their direct or indirect interests, by security holdings or otherwise, will be included in the definitive proxy statement relating to the proposed acquisition when it is filed with the SEC. These documents (when available) may be obtained free of charge from the SEC's website at www.sec.gov and the Company's website at https://investor.lantheus.com/. The contents of the websites referenced herein are not deemed to be incorporated by reference into the proxy statement.

Forward-Looking Statements

This document contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, that are subject to risks and uncertainties and are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements may be identified by their use of terms such as "advance," "believe," "continue," "could," "driving," "expect," "guidance," "maintain," "may," "on track," "plan," "potential," "predict," "progress," "should," "target," "will," "would" and other similar terms. Such forward-looking statements include the ability of Parent and the Company to complete the transactions contemplated by the Merger Agreement, including the

parties' ability to satisfy the conditions to the consummation of the transactions contemplated thereby; statements about the expected timetable for completing the proposed acquisition of the Company by Parent; the Company's and Parent's beliefs and expectations and statements about the benefits sought to be achieved by the proposed acquisition; the potential effects of the proposed acquisition on the Company and Parent; and the expected benefits and success of the Company's plans to execute on the commercialization of marketed products, ensure launch readiness for new products, advance a focused late-stage pipeline, and allocate capital thoughtfully, as well as the Company's focus mainly on its radiodiagnostic business and pursuing value-maximizing alternatives for its radiotherapeutic assets. These statements are based upon the current plans, estimates and expectations of the Company's management that are subject to risks and uncertainties that could cause actual results to materially differ from those described in the forward-looking statements. The inclusion of forward-looking statements should not be regarded as a representation that such plans, estimates and expectations will be achieved. Readers are cautioned not to place undue reliance on the forward-looking statements contained herein, which speak only as of the date hereof. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may materially differ from those described in the forward-looking statements.

Risks and uncertainties include, but are not limited to, uncertainties as to the timing of the proposed acquisition; the risk that competing offers or acquisition proposals will be made; the possibility that various conditions to the consummation of the proposed acquisition contained in the Merger Agreement (including the requisite vote by the Company's stockholders and receipt of regulatory approvals) may not be satisfied or waived on the expected timetable, or at all; uncertainty as to whether the milestones ("Milestones") associated with the contingent value rights ("CVRs") will be achieved and that holders of CVRs will receive payments in respect thereof; the effects of disruption from the transactions contemplated by the Merger Agreement and the impact of the announcement and pendency of the proposed acquisition on the Company's business, including the response of the Company's suppliers, business partners, employees and competitors to the proposed acquisition; the diversion of management time and attention from ongoing business operations and opportunities; disruption in or limitations on the Company's plans and operations attributable to the proposed acquisition; changes in the Company's business during the period between announcement and closing of the proposed acquisition; the effects of the proposed acquisition (or the announcement thereof) on the Company's share price; the risk that stockholder litigation in connection with the proposed acquisition may result in significant costs of defense, indemnification and liability; Parent's ability to obtain financing to complete the proposed acquisition; Parent's ability to successfully integrate the Company and execute on the continued development and commercialization of the Company's programs following the closing of the proposed acquisition, which could affect Parent's ability to achieve any of the milestones and trigger payments related to the Milestones under the CVRs; the continued market expansion, penetration and reimbursement for the Company's established commercial products, particularly PYLARIFY, DEFINITY and Neuraceq, in a competitive environment and the Company's ability to clinically and commercially differentiate its products; the Company's ability to complete the technology transfer across its PET manufacturing facilities ("PMF") network for PYLARIFY TruVu, the new formulation of the Company's F-18 prostate-specific membrane antigen PET imaging agent approved by the U.S. Food and Drug Administration ("FDA") on March 6, 2026, to obtain FDA approval for each PMF to manufacture PYLARIFY TruVu, to obtain adequate coverage and payment, including transitional pass-through payment status, for PYLARIFY TruVu to have payers add Healthcare Common Procedure Coding System ("HCPCS") coding to their systems on a timely basis, and to have customers adopt PYLARIFY TruVu; the availability of raw materials, key components, equipment, manufacturing time slots, either used in the production of the Company's products and product candidates, or by customers of its products and product candidates, including, but not limited to PET scanners for PYLARIFY, PYLARIFY TruVu, Neuraceq, MK-6240, LNTH-2501 and NAV-4694; the Company's ability to have third parties manufacture its products and product candidates and its ability to manufacture DEFINITY in its in-house manufacturing facility, in amounts and at the times needed; the Company's ability to satisfy its obligations under its existing clinical development partnerships using Neuraceq, MK-6240 or NAV-4694 and other assets as a research tool and under the license agreements through which it has rights to those assets, and to further develop and commercialize MK-6240 and NAV-4694 as approved products; the Company's ability to continue to successfully integrate acquisitions, including of Lantheus Biosciences Ltd., which could be impacted by unforeseen expenses related to integration activities, the potential for unforeseen liabilities within that business, the ability to integrate disparate information technology systems, retain key talent and create a merged corporate culture that successfully realizes the full potential of the combined organization; the Company's ability to obtain FDA approval for LNTH-2501, its investigational kit for the preparation of Gallium-68 edotreotide injection, which has been studied for use in conjunction with a PET scan to stage and localize neuroendocrine tumors in adult and pediatric patients, including

resolving certain unresolved facility inspection-related conditions identified in the Complete Response Letter issued by the FDA on June 26, 2026, and to successfully commercialize LNTH-2501 if approved; the Company's ability to obtain final FDA approval for PNT2003, which received FDA tentative approval earlier this year, to successfully defend the favorable District Court ruling invalidating all patents asserted by ADACAP, which is currently on appeal before the Court of Appeals for the Federal Circuit, and the timing, execution and success of the launch and commercialization of PNT2003, if approved; the cost, efforts and timing for clinical development, manufacturing, regulatory approval, adequate coding, coverage and payment and successful commercialization of the Company's newly approved products, product candidates and new clinical applications and territories for its products, in each case, that the Company or its strategic partners may undertake, including those investigational assets for which FDA approval has been obtained or is anticipated to be obtained this year; the timing, execution, and success of the Company's strategic program to simplify and streamline its operations so it can focus mainly on its radiodiagnostic business and pursue value-maximizing alternatives for its radiotherapeutic assets; the Company's ability to identify opportunities to collaborate with strategic partners and to acquire or in-license additional diagnostic and therapeutic product opportunities in oncology, neurology and other strategic areas and continue to grow and advance its pipeline of products; the timing and outcome of alleged stockholder actions filed against the Company; the effect that changes to management, including the recent turnover in the Company's leadership and senior management team, could have on its business; the Company's ability and the ability of Parent to complete the transactions contemplated by the Merger Agreement, including the parties' ability to satisfy the closing conditions in the agreement; the expected time frame for completing the proposed acquisition of the Company by Parent; about the benefits sought to be achieved by the proposed acquisition; the potential effects of the proposed acquisition on the Company and Parent; the possibility of any termination of the Merger Agreement; and the risks and uncertainties discussed in the Company's filings with the SEC (including those described in the "Risk Factors" section in its Annual Reports on Form 10-K and its Quarterly Reports on Form 10-Q).

The Company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by law.

No Offer or Solicitation

This communication is for informational purposes only and is not intended to and does not constitute, or form part of, an offer, invitation or the solicitation of an offer or invitation to purchase, otherwise acquire, subscribe for, sell or otherwise dispose of any securities, or the solicitation of any vote or approval in any jurisdiction, pursuant to the transaction or otherwise, nor shall there be any sale, issuance or transfer of securities in any jurisdiction in contravention of applicable law.

Exhibit 99.1

Dear Valued Supplier,

Recently we announced that Lantheus has signed a definitive agreement to be acquired by a wholly owned subsidiary of Curium, a leading global radiopharmaceutical company. You can read the full press release **here**.

Curium has proven expertise in the development, manufacturing and supply of radiopharmaceuticals that improve the way cancer is diagnosed and treated. They operate one of the world's most extensive nuclear medicine manufacturing and distribution networks with a global footprint extending to more than 70 countries, over 3,800 employees, and more than 80 manufacturing sites globally.

This transaction brings together two pioneers with complementary strengths and a shared passion for nuclear medicine. Together, Curium and Lantheus have the potential to create a global radiopharmaceutical leader spanning the full nuclear medicine value chain from isotope production and manufacturing to diagnostic imaging and targeted radionuclide therapy, delivering nuclear medicine solutions to patients around the world.

Importantly, this announcement does not change anything about our work together today. Until the transaction closes, which is currently expected in the first half of 2027, Lantheus will continue to operate as an independent company with the same focus and priorities. Your existing account team and day-to-day contacts remain the same, and you should expect no disruption to supply, service, or ongoing initiatives during this period.

Over time after closing, the combined company will bring together complementary capabilities, broader infrastructure, and expanded resources, creating new opportunities to serve customers and patients. We look forward to building on our relationship for many years to come.

Thank you for your support. Please don't hesitate to reach out to your usual point of contact if you have any questions.

Sincerely,

Mary Anne Heino

CEO

Lantheus

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significant costs of defense, indemnification and liability; Parent's ability to obtain financing to complete the proposed acquisition; Parent's ability to successfully integrate the Company and execute on the continued development and commercialization of the Company's programs following the closing of the proposed acquisition, which could affect Parent's ability to achieve any of the Milestones and trigger payments related to the Milestones under the CVRs; the continued market expansion, penetration and reimbursement for the Company's established commercial products, particularly PYLARIFY, DEFINITY and Neuraceq, in a competitive environment and the Company's ability to clinically and commercially differentiate its products; the Company's ability to complete the technology transfer across its PET manufacturing facilities ("PMF") network for PYLARIFY TruVu, the new formulation of the Company's F-18 prostate-specific membrane antigen PET imaging agent approved by the U.S. Food and Drug Administration ("FDA") on March 6, 2026, to obtain FDA approval for each PMF to manufacture PYLARIFY TruVu, to obtain adequate coding, coverage and payment, including transitional pass-through payment status, for PYLARIFY TruVu and to have customers adopt PYLARIFY TruVu; the availability of raw materials, key components, equipment, manufacturing time slots, either used in the production of the Company's products and product candidates, or by customers of its products and product candidates, including, but not limited to PET scanners for PYLARIFY, PYLARIFY TruVu, Neuraceq, MK-6240, LNTH-2501 and NAV-4694; the Company's ability to have third parties manufacture its products and product candidates and its ability to manufacture DEFINITY in its in-house manufacturing facility, in amounts and at the times needed; the Company's ability to satisfy its obligations under its existing clinical development partnerships using Neuraceq, MK-6240 or NAV-4694 and other assets as a research tool and under the license agreements through which it has rights to those assets, and to further develop and commercialize MK-6240 and NAV-4694 as approved products; the Company's ability to continue to successfully integrate acquisitions, including of Lantheus Biosciences Ltd. (formerly Life Molecular Imaging Limited) and Evergreen Theragnostics, Inc., which could be impacted by unforeseen expenses related to integration activities, the potential for unforeseen liabilities within those businesses, the ability to integrate disparate information technology systems, retain key talent and create a merged corporate culture that successfully realizes the full potential of the combined organization; the Company's ability to obtain FDA approval for LNTH-2501, its investigational kit for the preparation of Gallium-68 edotreotide injection, which has been studied for use in conjunction with a PET scan to stage and localize neuroendocrine tumors in adult and pediatric patients and to successfully commercialize LNTH-2501 if approved; the Company's ability to obtain final FDA approval for PNT2003, which received FDA tentative approval in March 2026, to be successful in the patent litigation associated with PNT2003 and to successfully commercialize PNT2003 if approved; the cost, efforts and timing for clinical development, manufacturing, regulatory approval, adequate coding, coverage and payment and successful commercialization of the Company's newly approved products, product candidates and new clinical applications and territories for its products, in each case, that the Company or its strategic partners may undertake, including those investigational assets for which FDA approval has been obtained or is anticipated to be obtained this year; the Company's ability to identify opportunities to collaborate with strategic partners and to acquire or in-license additional diagnostic and therapeutic product opportunities in oncology, neurology and other strategic

areas and continue to grow and advance its pipeline of products; the effect that changes to management, including the recent turnover in the Company's leadership and senior management team, could have on its business; and the risks and uncertainties discussed in the Company's filings with the SEC (including those described in the "Risk Factors" section in its Annual Reports on Form 10-K and its Quarterly Reports on Form 10-Q).

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