



DIVISION OF
CORPORATION FINANCE

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

November 3, 2010

Mr. Michael P. Duffy
Vice President, General Counsel and Secretary
Lantheus Medical Imaging, Inc.
331 Treble Cove Road, Building 600-2
North Billerica, MA 01862

**Re: Lantheus Medical Imaging, Inc.
Registration Statement on Form S-4
Filed October 6, 2010
File No. 333-169785**

Dear Mr. Duffy:

We have reviewed your 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 amending your registration statement and providing the requested information. 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 any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Registration Statement on Form S-4

General

1. Please note that where we provide examples to illustrate what we mean by our comments, they are examples and not complete lists. If our comments are applicable to portions of the filing that we have not cited as examples, please make the appropriate changes in accordance with our comments.
2. Please note that our comments on your request for confidential treatment will be provided under separate cover.

Prospectus Cover Page

3. We note that you have left a placeholder in various places in your filing indicating the date on which the exchange offer will expire. Please confirm supplementally that the offer will be open for at least 20 full business days to ensure compliance with Rule 14e-1(a) of the Exchange Act. Further, please confirm that the expiration date will be

included in the final prospectus to security holders and filed pursuant to the applicable provisions of Rule 424.

4. As currently represented, the offer could be open for less than 20 full business days due to the 5:00 p.m. expiration time instead of an expiration time of midnight on what ultimately may be the twentieth business day following commencement. See Question and Answer Eight in Exchange Act Release No. 16623 (March 5, 1980). Please confirm that the offer will be open at least through midnight on the twentieth business day. See Rule 14d-1(g)(3).
5. Please revise to indicate here that the Exchange Notes will be issued under the indenture governing the Restricted Notes.

Prospectus Summary

6. We note your statement in the introductory paragraph, "This summary is not complete and does not contain all of the information that may be important to you." While the prospectus summary should not contain all of the detailed information found in the prospectus, it should nevertheless be a complete summary of the most important information in the prospectus. Please revise your filing to delete this statement.
7. The prospectus summary should provide a brief, but balanced, description of the key aspects of the Company as of the latest practicable date. Currently, your summary presents a one-sided view of the company's business by discussing your strategies without discussing potential problems that could affect your future success. Please revise the summary to also discuss any negative aspects of the Company's experience, strategy and prospects and any risks or obstacles you face. Please also note that the *balancing* disclosure you provide should be no less prominent than your positive disclosure. This means that you cannot satisfy the comment by merely providing a cross-reference to the risk factors section.
8. The first sentence of "Overview" states that you are a "leading specialty pharmaceutical company." In your Business section, please provide support for this statement. For example, please disclose your market share for the relevant market for each of your principal products, and compare that market share to the market shares of your significant competitors.

Summary of the Terms of the Exchange Offer, page 3

9. Please add disclosure to this summary and the section entitled "Exchange Offer" beginning on page 40 that describes the circumstances under which additional interest would accrue on the Restricted Notes pursuant to Section 4 of the registration rights agreement and to provide the amount of such interest.
10. You state on page 3 and on page 41 that the terms of the Exchange Notes are substantially the same as the terms of the Restricted Notes except that the Exchange Notes "will not bear legends restricting their transfer." However, you state on the

Prospectus Cover Page that, in addition to transfer restrictions, additional interest provisions relating to the Restricted Notes do not apply to the Exchange Notes. Please revise your filing to eliminate this inconsistency.

Risk Factors

11. We note your statement in the introductory paragraph, “[a]ny of the following risks, as well as other risks and uncertainties, could harm the value of the notes directly” The risks described below are not the only ones that could impact our company or the value of the notes.” The Risk Factors section must contain all material risks to the investor. Please revise your filing to delete these statements.

12. Please add a risk factor describing the risks to your business and financial condition of the variable interest rate to which your revolving credit facility is subject, as disclosed on page 82.

“The global supply of Molybdenum-99 (‘Molly’) is fragile and not stable. . . .,” page 15

13. We note your disclosure that the NRU reactor was off-line from May 2009 until August 2010, and as a result, you experienced a “substantial negative effect” on your business, results of operations, financial condition and cash flows. Please quantify the approximate loss of revenue you experienced as a result of this shutdown.

“We are highly dependent on payments from third party healthcare payors, . . .,” page 17

14. Please quantify the percentage of your revenues that depend on the extent to which the costs of your products are reimbursed by third party private and governmental payors.

“In the United States, we are heavily dependent on a few large customers . . .,” page 25

15. Please expand this risk factor to quantify the “substantial portion” of non-U.S. revenue attributable to your international distributors .

“In the ordinary course of business, we may be subject to product liability claims . . .,” page 25

16. You state that claims that any judgment may be in excess of your insurance policy limits. Please disclose your current policy limits.

“We use hazardous materials in our business and must comply with environmental . . .,” page 26

17. We note your statement that you “cannot assure” you “have been or will be in compliance with environmental and health and safety laws at all times.” If you have failed to comply with environmental and health and safety laws in the past, please disclose the circumstances of each event, including the date, the cause, and the steps taken to remedy your practices.

“We face significant competition in our business and may not be able to compete effectively,” page 28

18. We note your disclosure that “[g]eneric competition has eroded [your] share for Cardiolite.” Please disclose your market share for the product prior to the introduction of generic Cardiolite products in September 2008, and your present market share.
19. Please expand this risk factor to indicate that sales from Cardiolite constitute a substantial portion of your revenue, and quantify the percentage of revenue received from sales of Cardiolite for the 2007, 2008, and 2009 fiscal years.

“Our business is subject to international economic, political and other risks . . .,” page 29

20. Please clarify what percentage of your total revenues are derived from countries outside the United States.

“We face currency and other risks associated with international sales,” page 30

21. Please briefly expand your disclosure in this risk factor to disclose the net impact of foreign currency changes on transactions during 2009 and the first six months of 2010, as noted on page 82 of your filing.
22. Please expand this risk factor to disclose that you have not used derivative financial instruments or other financial instruments to hedge economic exposures resulting from foreign currency risk, as noted on page 82 of your filing.

“If we lose the services of our key personnel, our business could be adversely affected,” page 31

23. Please identify by name the members of your executive leadership that play a significant role in generating new business and retaining existing customers.
24. Please disclose in this risk factor that you do not have employment agreements with any key personnel other than Messrs. Pickering and Kiepert. Please also disclose whether you have key man insurance policies.

“We have a substantial amount of indebtedness which may limit our financial . . .,” page 31

25. Please clarify in this risk factor that your \$250 million in indebtedness consists entirely of the Restricted Notes subject to the Exchange Offer, and disclose the maturity date of the notes.
26. You state on page 31 that your indebtedness may “make it more difficult for [you] to satisfy and comply with [your] obligations with respect to the notes.” Please expand your disclosure to briefly describe these obligations.

“Despite our substantial indebtedness, we may incur more debt, . . .,” page 32

27. You disclose in the risk factor entitled, “Our debt agreements will contain restrictions . . .” on page 32 that the indenture governing the notes limits your ability to incur additional debt. However, you state in the instant risk factor that these restrictions are subject to important exceptions and qualifications which may allow you to incur substantial additional indebtedness in the future. Please expand this risk factor to briefly describe the exceptions and qualifications that would allow you to incur additional debt.

“We may not be able to generate sufficient cash flow to meet our debt service obligations,” page 33

28. Please revise this risk factor to quantify your expected debt service payments on an annual basis.

“An adverse rating of the notes may cause their trading price to fall,” page 36

29. Please disclose in this risk factor and in the Business section the ratings assigned to the notes. In the Business section, please also indicate the number of rating classifications for each rating agency described and the relative rating, e.g. fifth highest of eight classifications, in order to make the disclosure more meaningful to your investors who may not be familiar with this terminology.

“Your Restricted Notes will not be accepted for exchange if you fail to follow . . .,” page 36

30. Please refer to the relevant section in your registration statement that describes the exchange offer procedures in depth.
31. Please disclose in this risk factor the date of expiration of the exchange offer.

Cautionary Note Regarding Forward-Looking Statements

32. Please revise to delete the references to the safe harbor provisions. A company that is not subject to the reporting requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 at the time a forward-looking statement is made cannot avail itself of the protections of Section 27A of the Securities Act of 1933 or Section 21E of the Securities Exchange Act of 1934.

In addition, the safe harbor for forward-looking statements provided in the Private Securities Litigation Reform Act of 1995 does not apply to statements made in connection with a tender offer. See Section 27A(b)(2)(C) of the Securities Act and Section 21E(b)(2)(C) of the Exchange Act.

The Exchange Offer

Purpose and Effect, page 40

33. Please briefly define the term “Entitled Securities” on page 40.

Terms of the Exchange Offer, page 41

34. We note your disclosure that any Restricted Notes not accepted for exchange will be returned to an account maintained with DTC “as promptly as practicable” after the expiration or termination of the exchange offer. Rule 14e-1(c) requires that you return the Restricted Notes “promptly” upon expiration or termination of the offer, as applicable. Please revise. Similarly, please revise your disclosure on page 7 to state that you will return any restricted Notes not accepted for exchange “promptly” rather than “as promptly as we can.”

Conditions to the Exchange Offer, page 46

35. We note your statement that you may terminate or amend the exchange offer, if at any time before the acceptance of any Restricted Notes for exchange, the events described on pages 46-47 occur. Please note that all offer conditions, except those related to the receipt of government regulatory approvals necessary to consummate the offer, must be satisfied or waived at or before the expiration of the offer, not merely before acceptance of the outstanding notes for exchange. Please revise the language accordingly.

Management’s Disclosure and Analysis of Financial Condition and Results of Operations

Global Moly Supply Challenge, page 57

36. You state that the shutdown of the reactor that manufactures Moly, a critical ingredient in TechneLite, substantially increased your costs for Moly, which you tried to pass on to your customers. You state on page 15 that the reactor that is manufacturing Moly for you is 53 years old and its license expires in 2011. You state that the shutdown had a substantial effect on your results of operations, liquidity, and cash flows. Please disclose the effect the shutdown of the reactor had on your results of operations, liquidity and cash flows and the anticipated effect in the future. Clarify in Cost and Expenses on page 64 how the substantial increase in costs disclosed on page 15 relating to the shortage of Moly affected the net decrease in Cost and Expenses of \$5.4 million.

Trends and Outlook, page 58

37. You disclose on page 16 that beginning in July 2010 BVL temporarily shut down its facility until March 2011. You also state that BVL is your sole source of manufacturing of Definity and manufactures the majority of the Cardolite supply and certain TechniLite accessories. You disclose that BVL anticipated this shutdown and produced inventory for you in anticipation of the shutdown. Please disclose the

expected effect the shutdown will have on your financial statements, including any possibly inventory obsolescence due to manufacturing the products in advance of your anticipated need. Disclose in Management's Discussion and Analysis and the financial statements what obligation you have with respect to the products manufactured in advance and how this obligation is recorded in your financial statements.

Critical Accounting Policies, page 60

Revenue Recognition, page 60

38. For each period presented, quantify and disclose the amount of changes in estimates of prior period customer rebates, discounts, chargebacks and allowances recorded during the current period and explain the reasons for material changes recorded. In doing so, please disclose a roll forward of the liability for each estimate for each period presented showing the following:

- Beginning balance,
- Current provision related to sales made in current period,
- Current provision related to sales made in prior periods,
- Actual returns or credits in current period related to sales made in current period,
- Actual returns or credits in current period related to sales made in prior periods, and
- Ending balance

Goodwill, Intangibles and Long-Lived Assets, page 61

39. Please revise your disclosure to clarify that your goodwill impairment test is performed at the reporting unit level as described in more detail in the notes to your financial statements. Describe the two methods you use to estimate the fair value of your reporting units and direct us to the accounting literature that supports your method of combining the results obtained in order to decrease the inherent risk associated with each model if used independently.

Liquidity and Capital Resources, page 77

Sources of Liquidity, page 79

40. You disclose on page 79 that net proceeds of the Restricted Notes were used, in part, to issue a dividend to Holdings to repay a \$75 million demand note it issued. In an appropriate place in your filing, please describe the material terms of the demand note.

Industry and Market Data, page 84

41. Please tell us whether the data prepared by GIA, Frost and Sullivan, or CMS were prepared on your behalf. If any were prepared on your behalf, please include a statement to this effect. In addition, if a consent of any such party that prepared the

study is required under Section 7(a) and Rule 436 of the Securities Act, please file such consent as an exhibit to the registration statement.

42. We note your statement that “Industry publications and surveys generally state that they have obtained information from sources believed to be reliable, but do not guarantee the accuracy and completeness of such information.” It is not permissible to disclaim liability for statements included in your registration statement. Please delete this sentence, or specifically state that you accept liability for the statements included in your registration statement.

Business, page 85

Distribution; Marketing and Sales, page 93

43. We note your description of the terms of your material distribution arrangements on page 94. Please expand this description of your agreements with Cardinal, UPPI and GE Healthcare to describe with more specificity the material terms of these agreements. This would include, for example, the existence of minimum purchase requirements, if any, and the precise termination date with respect to each agreement. It is not sufficient to refer generally to the types of provisions in these agreements.

Raw Materials and Supply Relationships, page 95

44. Please expand your disclosure in this section to describe the material terms of your supply agreements with MDS Nordion and NTP, including whether there are any minimum purchase obligations, and the term and termination provisions of each agreement.

Manufacturing, page 95

45. Please expand your description of your manufacturing agreement with BVL to discuss the material terms, including any minimum purchase obligations, and the term and termination provisions of the agreement.

Intellectual Property, page 96

46. Please expand your disclosure to include a more robust discussion of your material patents, including which product they relate to, the expiration dates for each, and the jurisdictions in which they were granted.
47. We note your disclosure on page 97 that you license third party technologies and other intellectual property rights that are incorporated into some elements of your drug discovery and development efforts. Please expand your disclosure to provide a complete discussion of these licenses. If the licenses are material to your business, please disclose the material terms of the each license, including the obligations of each party, all of the products and/or technologies to which the license relates, the payment terms and amounts paid to date, and the term and termination provisions. In addition, please file the license agreements as exhibits to your registration statement,

or provide us with a legal analysis as to why these agreements need not be filed pursuant to Item 21 of Form S-4 and Item 601(b)(10) of Regulation S-K.

Industry

U.S. Healthcare Industry Trends, page 106

48. Please identify the source of the statements made in the first three bullet points of this subsection.

Demographic Trends, page 106

49. Please identify the source of all statements made in this subsection.

Management

Executive Officers and Directors, page 110

50. We note that several officers and directors have relationships with Avista, a related party. In this section, please describe any arrangements or understandings between you and Avista pursuant to which any officers or directors hold their positions.

51. Please describe the business experience of Don Kiepert from July 2007 to January 2008, to the extent that he was employed during that time, pursuant to Item 19(a)(7) of Form S-4 and Item 401(e)(1) of Regulation S-K.

Executive and Director Compensation

Compensation Discussion and Analysis, page 113

Compensation Benchmarking, page 114

52. Please expand your disclosure to provide the criteria for selection of the companies in your peer group.

53. We note that in 2009, you benchmarked base salaries against the compensation practices of your peer group. You identify the companies in your peer group, but provide 2008 mean revenue information. Please confirm that you used the same peer group to benchmark 2009 base salaries.

Elements of Compensation, page 115

Annual Cash Incentive Compensation, page 116

54. We note your disclosure that for Named Executive Officers other than Messrs. Pickering and Kiepert, cash bonuses were based upon the achievement of the EBITA target, department performance, and individual performance goals. Please ensure that

your disclosure of performance goals on page 117 described all performance goals, whether departmental or individual, quantifying where applicable.

55. Please expand your disclosure to discuss the Compensation Committee's assessment of the actual level of achievement by Messrs. Pickering, Kiepert and your other NEOs of the non-EBITDA performance goals described on page 117.

Potential Payment Upon Termination or Change in Control, page 126

Employment Agreements and Arrangements, page 126

Larry Pickering, page 126

56. Please file the January 4, 2010 amendment to Mr. Pickering's employment agreement as an exhibit to your filing pursuant to Item 21 of Form S-4 and Item 601(b)(10) of Regulation S-K.

Principal Stockholders, page 129

57. Please identify the natural person(s) with voting and dispositive power over the shares held by Holdings.

Certain Relationships and Related Party Transactions, page 130

58. Please provide the information required by Item 18(a)(7)(iii) of Form S-4 and Item 404(b) of Regulation S-K.
59. We note that you have described the Quintiles Master Services Agreement, but have not filed it as an exhibit to your registration statement. Please file the agreement as an exhibit to your registration statement, or provide a legal analysis as to why the agreement need not be filed pursuant to Item 21 of Form S-4 and Item 601(b)(10)(ii)(A) of Regulation S-K.

Lantheus MI Intermediate, Inc. and subsidiaries
Notes to Consolidated Financial Statements

1. Description of Business

Separation from Bristol Myers Squibb, page F-7

60. You state that you acquired BMS Medical Imaging Business on January 8, 2008, but included the results of operations from January 1, 2008 for convenience. It appears that the effect on your net income from recording the results of operations prior to the acquisition date is not insignificant. Please explain to us why you have not included the results of operations from the date of acquisition.
61. We understand that ACP Lantern Holdings Inc. acquired BMS Medical Imaging on January 8, 2008. ACP Lantern Holdings Inc. appears to be a co-investor along with

Avista and owns 99.5% of Holdings, which is the sole stockholder of Lantheus Intermediate. Please clarify in the filing why BMS Medical Imaging is considered the predecessor of Lantheus MI Intermediate. Also, please clarify that Lantheus MI Intermediate had no operations prior to January 8, 2008.

Exhibit Index

62. Please file all exhibits with your next amendment. We may have further comments when we have had the opportunity to review them.

Correspondence filed October 6, 2010

63. We note that you are registering the exchange notes in reliance on our position enunciated in Exxon Capital Holdings Corp., SEC No-Action Letter (April 13, 1988). See also Morgan Stanley & Co. Inc., SEC No-Action Letter (June 5, 1991) and Shearman & Sterling, SEC No-Action Letter (July 2, 1993). The supplemental letter you filed as correspondence appears to omit one representation that we require consistent with our position in the aforementioned no-action letters:

“[Issuer] further represents that, with respect to any broker-dealer that participates in the Exchange Officer with respect to Outstanding Securities acquired for its own account as a result of market-making activities or other trading activities, each such broker-dealer must confirm that it has not entered into any arrangement or understanding with [Issuer] or an affiliate of [Issuer] to distribute the Exchange Securities.”

Please amend the supplemental letter to include this representation.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and

- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Ibolya Ignat at (202) 551-3656 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Rose Zukin at (202) 551-3239 or Daniel Greenspan at (202) 551-3623 with any other questions. In this regard, do not hesitate to contact me at (202) 551-3710.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: Heather L. Emmel, Esq.
Weil, Gotshal & Manges LLP
767 Fifth Avenue
New York, New York 10153