Lantheus Announces Strategic Collaboration with NanoMab to Provide a Novel Biomarker for Clinical Development and Management of Immuno-Oncology Therapies

May 30, 2019

Lantheus expands into immuno-oncology and pharmaceutical services business throughthe license of NanoMab's NM-01, an anti-PD-L1 imaging biomarker, designed to evaluate tumor immune activity and potentially guide future patient selection for immuno-oncology treatment

NORTH BILLERICA, Mass.--(BUSINESS WIRE)--May 30, 2019-- Lantheus Holdings, Inc. (the "Company") (NASDAQ: LNTH), parent company of Lantheus Medical Imaging, Inc. ("LMI"), a global leader in the development, manufacture and commercialization of innovative diagnostic imaging agents, today announced that it has entered into a strategic collaboration and license agreement with NanoMab Technology Limited ("NanoMab"), a privately-held biopharmaceutical company focusing on the development of next generation radiopharmaceuticals to be used in the development of immuno-oncology therapies. This collaboration will provide the first broadly-available imaging biomarker research tool to pharmaceutical companies and top academic centers conducting research and development on immuno-oncology treatments, including combination therapies.

Since the first programmed cell death protein 1 (PD-1) inhibitors launched in 2014, the global checkpoint inhibitor market has grown to greater than $14 billion in 2018 and is anticipated to continue growing at a double-digit rate[1]. Currently more than 1,500 clinical trials on checkpoint inhibitors are ongoing according to the Cancer Research Institute, an increase of six fold in the last three years[2].

Although PD-(L)1 checkpoint inhibitors have achieved impressive results in certain patient populations, improving response rates and extending survival across multiple tumor types, challenges remain in optimizing the use of these therapies. Across tumor types, only about 20% of patients respond to treatment with checkpoint inhibitors, even with the use of PD-L1 immuno-histochemistry assays to select patients[3]. There is a need for biomarkers that improve utilization of immunotherapies by identifying those patients most likely to benefit from therapy, which may also serve to avoid unnecessary cost to patients and health systems.

Under the collaboration agreement, Lantheus will license NanoMab's NM-01, a proprietary radiopharmaceutical biomarker camelid single-domain antibody that has demonstrated a high affinity for PD-L1 protein. NM-01 could provide a specific, non-invasive approach to diagnosis, including use in whole-body imaging, or virtual biopsy. NM-01 potentially allows detection of PD-L1 expression in immuno-oncology studies, either before or during immuno-oncology treatment. Lantheus will provide NM-01 as a clinical research tool, together with support and analytics, to pharmaceutical companies and the largest academic centers conducting clinical research in immuno-oncology.

"Our collaboration with NanoMab provides Lantheus the opportunity to extend our diagnostic and radiopharmaceutical expertise into the fast growing market of immuno-oncology," said Mary Anne Heino, President and Chief Executive Officer of Lantheus. "We already serve the oncology field with several radiopharmaceutical agents and are excited to work with NanoMab to bring the first broadly available PD-L1 imaging research tool to the global pharmaceutical community."

"NanoMab is proud to partner with Lantheus for the development and the commercialization of NM-01, as we think our unique technology can help progress innovation in immuno-oncology," said Ting Hong Hoi, CEO of NanoMab. "Lantheus has the infrastructure, established expertise and the reach to best optimize the value of NM-01 for patients and our shareholders."

NM-01 is in Phase 1 clinical development with 21 patients currently enrolled in a study that will eventually recruit a total of 50 patients. The agent has a short half-life and provides diagnostically significant results in approximately two hours. Early Phase 1 study data was published in the February 22, 2019 issue of the *Journal of Nuclear Medicine* (Xing et al.). NanoMab plans to file an Investigational Medicinal Product Dossier (IMPD) in the United Kingdom in the second half of 2019.

About Lantheus Holdings, Inc. and Lantheus Medical Imaging, Inc.
Lantheus Holdings, Inc. is the parent company of LMI, a global leader in the development, manufacture and commercialization of innovative diagnostic imaging agents and products. The Company is headquartered in North Billerica, Massachusetts with offices in Puerto Rico and Canada. For more information, visit www.lantheus.com.

About NanoMab Technology Limited
NanoMab Technology Limited is a privately-held biopharmaceutical company focusing on the development of next generation radiopharmaceuticals for cancer precision medicine to address the unmet diagnostic and medical needs of cancer patients around the world. NanoMab's goal is to develop a pipeline of theranostic couple camelid antibodies with its proprietary camelid antibodies platform to address the unmet diagnostic and medical need for cancer patients around the world. For more information, visit

www.nano-mab.com/en/.

Safe Harbor for Forward-Looking and Cautionary Statements

This press release contains "forward-looking statements" as defined under U.S. federal securities laws, including statements about future events and outcomes. Forward-looking statements may be identified by their use of terms such as anticipate, can, could, potential, plan, and other similar terms. Such forward-looking statements are subject to risks and uncertainties that could cause actual results to materially differ from those described in the forward-looking statements. Readers are cautioned not to place undue reliance on the forward-looking statements contained herein, which speak only as of the date hereof. 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. Risks and uncertainties that could cause the Company's actual results to materially differ from those described in the forward-looking statements are discussed in our filings with the Securities and Exchange Commission (including those described in the Risk Factors section in the Company's Annual Reports on Form 10-K and our Quarterly Reports on Form 10-Q).

1. GlobalData. Drug Sales and Consensus Forecast Advance Export - Drug Details: Immune Checkpoint Modulator.
2. Cancer Research Institute. http://www.cancerresearch.org/scientists/clinical-accelerator/landscape-of-immuno-oncology-drug-development/pd-1-pd-l1-landscape. Accessed May 29, 2019.
3. Xu-Monette Zy, Zhang M, Li J and Young KH (2017) PD-1/P-L1 Blockage: Have We Found the Key to Unleash the Antitumor Immune Response? Front. Immunol. 8:1597.doi: 10.3389/fimmu.2017.01597

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Source: Lantheus Holdings, Inc.

Media:
Meara Murphy
Director, Corporate Communications
978-671-8508

Investors:
Mark Kinarney
Director, Investor Relations
978-671-8842