



## **Lantheus Grants Allegheny Health Network Exclusive Rights for the Use of its Microbubbles in Combination with Ultrasound Assisted Gene Therapy for the Development of a Proposed Treatment for Xerostomia**

April 30, 2021

NORTH BILLERICA, Mass.--(BUSINESS WIRE)--Apr. 30, 2021-- Lantheus Holdings, Inc. (NASDAQ: LNTH) (Lantheus), an established leader and fully integrated provider of innovative imaging diagnostics, targeted therapeutics and artificial intelligence solutions to Find, Fight and Follow serious medical conditions, today announced a strategic collaboration with Allegheny Health Network (AHN), a western Pennsylvania healthcare delivery system headquartered in Pittsburgh, PA. Under the agreement, Lantheus' microbubbles will be used in combination with AHN's ultrasound-assisted non-viral gene transfer (UAGT) technology for the development of a proposed treatment for xerostomia.

Xerostomia, a lack of saliva production leading to dry mouth, has a variety of causes, including radiotherapy and chemotherapy, the chronic use of drugs and rheumatic and dysmetabolic diseases. It is also a common side effect of ionizing radiation used to treat head and neck cancer.<sup>1</sup>

A proof of concept Phase 1 clinical trial sponsored by a third party showed that Aquaporin-1 (AQP1), a trans-membrane protein that facilitates water movement across lipid layers, restored saliva flow in a human population using an adenovirus-based vector encoding AQP1 to a single previously irradiated parotid gland.<sup>2</sup> The results from this study led AHN to research using UAGT technology targeting the salivary gland, which combines the use of nonviral DNA vector and lipid microbubbles with a low-frequency acoustic field to create a 'sonoporation' effect allowing gene transfer to the cells of the salivary gland without the introduction of viral antigens.<sup>3</sup>

According to Mark Trombetta, MD, Director of Clinical Program Development for the AHN Cancer Institute, a radiation oncologist and co-investigator in the network's study of UAGT, thousands of cancer patients suffer from radiation-induced xerostomia, which can cause severe tooth decay, chronic oral pain, loss of taste, inability to eat properly and increased oral infections. Once xerostomia begins, it is a permanent condition.

"We believe that UAGT may provide long-term relief of radiation-induced xerostomia, with adjustable dosing and potential for booster doses over time," said Warren Swegal, MD, an AHN head and neck surgeon and clinical lead of the network's UAGT program. "No other existing treatment offers a long-lasting solution for this life-altering condition, and we are thrilled to be able to further develop and improve the therapy by leveraging Lantheus' proven microbubble technology."

"We are excited to support AHN in its efforts to progress this innovative development program. Xerostomia is a chronic and debilitating condition with limited treatment options for patients," said Mary Anne Heino, President and Chief Executive Officer of Lantheus. "We believe our microbubble combined with AHN's UAGT technology have the potential to make a difference in the lives of these patients."

Lantheus will supply its microbubbles and activation devices to AHN. AHN will be solely responsible for all development work, future regulatory submissions and commercialization. The deal terms include a transfer price and royalties.

### **About Lantheus Holdings, Inc.**

Lantheus Holdings, Inc. is the parent company of Lantheus Medical Imaging, Inc., Progenics Pharmaceuticals, Inc. and EXINI Diagnostics AB and an established leader and fully integrated provider of innovative imaging diagnostics, targeted therapeutics and artificial intelligence solutions to Find Fight and Follow<sup>®</sup> serious medical conditions. Lantheus provides a broad portfolio of products, including the echocardiography agent DEFINITY<sup>®</sup> Vial for (Perflutren Lipid Microsphere) Injectable Suspension; Technelite<sup>®</sup> (Technetium Tc99m Generator), a technetium-based generator that provides the essential medical isotope used in nuclear medicine procedures; AZEDRA<sup>®</sup> for the treatment of certain rare neuroendocrine tumors; and RELISTOR<sup>®</sup> for the treatment of opioid-induced constipation, which is partnered with Bausch Health Companies, Inc. The Company is headquartered in North Billerica, Massachusetts with offices in New York, New Jersey, Canada and Sweden. For more information, please visit [www.lantheus.com](http://www.lantheus.com).

### **About Allegheny Health Network**

Allegheny Health Network ([AHN.org](http://AHN.org)) is an integrated healthcare delivery system serving the greater Western Pennsylvania region. The Network is composed of 13 hospitals, ambulatory surgery centers, Health + Wellness Pavilions, an employed physician organization, home and community-based health services, a research institute and a group purchasing organization. The Network provides patients with access to a complete spectrum of advanced medical services, including nationally recognized programs for primary and emergency care, cardiovascular disease, cancer care, orthopedic surgery, neurology and neurosurgery, women's health, autoimmune diseases, diabetes and more. AHN employs approximately 21,000 people, has more than 2,600 physicians on its medical staff and serves as a clinical campus for Drexel University College of Medicine and the Lake Erie College of Osteopathic Medicine.

### **Safe Harbor for Forward-Looking and Cautionary Statements**

This press release 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. Forward-looking statements may be identified by their use of terms such as "anticipate," "believe," "confident," "could," "estimate," "expect," "intend," "may," "plan," "predict," "potential," "project," "target," "will" and other similar terms. Such forward-looking statements are based upon current plans, estimates and expectations 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. 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 our actual results to materially differ from those described in the forward-looking statements include (i) expectations for future clinical trials, the timing and potential outcomes of clinical studies and filings and other interactions with regulatory authorities; (ii) the impact of legislative, regulatory, competitive and technological changes; (iii) AHN's ability to successfully launch its UAGT technology with our microbubble as a commercial product; and (iv) the risk and uncertainties discussed in our filings with the Securities and Exchange Commission (including those described in the Risk Factors section in our Annual Reports on Form 10-K and our Quarterly Reports on Form 10-Q).

<sup>1</sup>Pinna R, Campus G, Cumbo E, Mura I, Milia E. Xerostomia induced by radiotherapy: an overview of the physiopathology, clinical evidence, and management of the oral damage. *Ther Clin Risk Manag*. 2015; 11:171-188.

<sup>2</sup><https://clinicaltrials.gov/ct2/show/NCT02446249>

<sup>3</sup>Wang Z, Zourelis L, Wu C, Edwards PC, Trombetta M, Passineau MJ. Ultrasound-assisted nonviral gene transfer of AQP1 to the irradiated minipig parotid gland restores fluid secretion. *Gene Therapy*. 2015; 22:739-749.

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