



Moderna Announces License and Collaboration Agreement with Merck to Develop Messenger RNA-based Antiviral Vaccines and Passive Immunity Therapies

January 13, 2015

CAMBRIDGE, Mass., January 13, 2015 — Moderna Therapeutics today announced a license and collaboration agreement with Merck, known as MSD outside the United States and Canada, through a subsidiary, for the discovery and development of vaccines and passive immunity treatments against viral diseases using modified messenger RNA (mRNA). Moderna is a pioneer in the development of mRNA Therapeutics™ across a range of therapeutic applications. Moderna's work in the collaboration will be led by Valera, its venture focused on the development of mRNA vaccines and therapeutics to fight infectious disease.

The vaccines work of Valera builds on a body of preclinical research at Moderna showing the ability of modified mRNA to express viral antigens in vivo and to induce robust immune responses. Valera's therapeutic passive immunity programs will expand on Moderna's research using mRNA to express antibodies that bind to viral and other targets. The robust data in these programs across a range of preclinical infectious disease models, together with the inherent, rapid turn-around time in creating novel mRNA constructs, provide Valera with a potentially powerful and versatile new platform for the creation of a broad array of vaccines and passive immunity therapies.

"Given the tremendous potential for messenger RNA Therapeutics across a wide range of therapeutic applications, establishing long-term strategic relationships with world leaders in their fields will accelerate our ability to bring mRNA products to patients in need," said Stéphane Bancel, president and CEO of Moderna. "Merck's worldwide leadership in vaccines and anti-infective treatments make them an ideal collaborator for us, particularly given their strong commitment to innovation and new approaches to prevent and treat serious viral diseases. We are excited to work in collaboration to move these promising programs forward for patients."

"By combining Merck's strength in vaccine and antiviral therapeutic development with Moderna's mRNA Therapeutics technology we are well positioned to develop differentiated candidates with the potential to provide meaningful benefit to patients," said Dr. Roger M. Perlmutter, president of Merck Research Laboratories. "We look forward to working with the scientific and technical teams at Moderna."

The three-year research collaboration (with the possibility of a one-year extension) is focused on the development of new mRNA-based treatments and vaccines against four undisclosed viruses. Under the terms of the agreement, Merck will make an upfront cash payment to Moderna of \$50 million to give Merck the ability to utilize the granted licenses to commercialize five product candidates, and will make a \$50 million equity investment in Moderna. This is in addition to the \$450 million financing from other investors previously announced on January 5, 2015. Moderna will be eligible for undisclosed per-product development and commercial milestones under the license as well as tiered royalties on commercial sales. Merck will lead the discovery and development of candidates and commercialization of any products resulting from this license and collaboration agreement, while Moderna will design and synthesize the messenger RNA product candidates directed against selected targets.

Moderna's mRNA Therapeutics™ platform builds on the discovery that modified mRNA can direct the body's cellular machinery to produce nearly any protein of interest, from native proteins to antibodies and other entirely novel protein constructs with therapeutic activity inside and outside of cells. In addition to the license and collaboration announced today with Merck, Moderna has ongoing strategic agreements with Alexion Pharmaceuticals in the area of rare diseases, AstraZeneca in cardiovascular disease and some areas of oncology, and DARPA (the Defense Advanced Research Projects Agency) in biodefense.

About Valera LLC, a Moderna Venture

Valera LLC, the second venture company formed by Moderna, is focused exclusively on the advancement of vaccines and therapeutics for the prevention and treatment of infectious diseases. Valera is leveraging Moderna's messenger RNA Therapeutics™ platform, an entirely new *in vivo* drug technology that produces human proteins, antibodies and entirely novel protein constructs inside patient cells, which are in turn secreted or active intracellularly. For more information please visit www.modernatx.com/ventures.

About Moderna Therapeutics

Moderna is pioneering [messenger RNA Therapeutics™](#), an entirely new *in vivo* drug technology that produces human proteins, antibodies and entirely novel protein constructs inside patient cells, which are in turn secreted or active intracellularly. This breakthrough platform addresses currently undruggable targets and offers a superior alternative to existing drug modalities for a wide range of disease conditions. The company plans to develop and commercialize its innovative mRNA drugs through a combination of strategic relationships as well as new formed ventures, including [Onkaido LLC](#), focused oncology drug development, and [Valera LLC](#), focused on infectious disease. Founded by [Flagship Venture Labs™](#), Cambridge-based Moderna is privately held and currently has strategic agreements with [AstraZeneca](#) and [Alexion Pharmaceuticals](#). To learn more, visit www.modernatx.com.