



March 12, 2020

## **Medicago, a subsidiary in Canada is tackling with COVID-19, coronavirus**

Mitsubishi Tanabe Pharma Corporation (Head Office: Chuo-ku, Osaka; President & Representative Director; Masayuki Mitsuka) announced today that its affiliated company, Medicago Inc. (Head Office: Quebec, Canada; CEO; Bruce D. Clark) has successfully produced a Virus Like Particle (VLP) of the coronavirus responding COVID-19.

Production of the VLP is the first step in developing a vaccine for COVID-19 which will now undergo preclinical testing for safety and efficacy. Once such testing is completed, Medicago expects to discuss with the appropriate Health Agencies to initiate human trials of the vaccine by summer (July/August) 2020.

In addition, Medicago is also using their technology platform to develop antibodies against SARS-CoV-2 (virus causing the COVID-19 disease) in collaboration with the Laval University's Infectious Disease Research Centre. This research is being funded, in part, by the Canadian Institutes of Health Research (CIHR)

**Mitsubishi Tanabe Pharma Corporation**  
**Corporate Communications Department**

Media contacts: TEL:+81 6 6205 5119



English media contact:

Alissa Von Bargaen

+1-647-234-5975

Alissa.VonBargaen@gcicanada.com

FOR IMMEDIATE RELEASE

**Medicago announces production of a viable vaccine candidate for COVID-19**

***The biopharma successfully produced Virus-Like Particles (VLP) of the coronavirus in just 20 days using proprietary plant-based technology***

***Medicago's platform can produce both vaccine and antibody candidates against COVID-19 disease***

**QUEBEC CITY, March 12, 2020** - Medicago, a biopharmaceutical company headquartered in Quebec City, announced today that they have successfully produced a Virus-Like Particle (VLP) of the coronavirus just 20 days after obtaining the SARS-CoV-2 (virus causing the COVID-19 disease) gene. Production of the VLP is the first step in developing a vaccine for COVID-19 which will now undergo preclinical testing for safety and efficacy. Once this is completed, Medicago expects to discuss with the appropriate Health Agencies to initiate human trials of the vaccine by summer (July/August) 2020.

Medicago is also using its technology platform to develop antibodies against SARS-CoV-2 in collaboration with the Laval University's Infectious Disease Research Centre headed by Dr. Gary Kobinger who helped develop a vaccine and treatment for Ebola. These SARS-CoV-2 antibodies could potentially be used to treat people infected by the virus. This research is being funded, in part, by the Canadian Institutes for Health Research (CIHR).

Medicago is a leader in plant-based technology having previously demonstrated its capability to be a first responder in a flu pandemic. In 2009, the company produced a research-grade vaccine candidate against H1N1 in just 19 days. In 2012, Medicago manufactured 10 million doses of a monovalent influenza vaccine within one month for the Defense Advanced Research Projects Agency (DARPA), part of the U.S. Department of Defense. In 2015, Medicago also demonstrated that it could rapidly produce an anti-Ebola monoclonal antibody cocktail for the Biomedical Advanced Research and Development Authority (BARDA), part of the U.S. Department of Health and Human Services.

"The pace of our initial progress in COVID-19 is attributable to the capability of our plant-based platform which is able to produce vaccine and antibody solutions to counteract this global public health threat. The ability to produce a candidate vaccine within 20 days after obtaining the gene is a critical differentiator for our proven technology. This technology enables scale-up at unprecedented speed to potentially combat COVID-19." said Dr Bruce Clark, CEO of Medicago.

Dr Gary Kobinger, Professor in the Department of Microbiology and Infectious Diseases and the Director of the Infectious Disease Research Centre at Laval University, said "the collaborative efforts established between the research team at Laval University and Medicago have been very successful in developing unique antibodies against infectious diseases such as RSV and HMPV and that experience gives us confidence for successful identification of therapeutic antibodies against SARS-CoV-2".

Medicago's first product, a seasonal recombinant quadrivalent VLP vaccine for active immunization against influenza, is currently under review by Health Canada following the completion of a robust safety and efficacy clinical program involving over 25,000 patients.

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### **Notes to Editors:**

#### **Medicago's unique plant-based platform**

The company uses a proprietary plant-based technology to develop protein-based therapeutics. Unlike traditional vaccination development, Medicago does not use animal products or live viruses to create its products. Instead, it uses Virus-Like Particles (VLPs) that mimic the shape and dimensions of a virus, which allows the body to recognize them and create an immune response in a non-infectious way. Clinical trial data suggest that VLPs have a multi-modal mechanism of action that is different from that of inactivated vaccines, activating both arms of the immune system – antibody and cell-mediated responses.

Medicago's proprietary technology is rapid, versatile, and scalable. As soon as the genetic sequence of a virus is made available, Medicago can develop a clinical-grade vaccine candidate in only a few weeks. Its recombinant technology allows the production of a vaccine that precisely matches the circulating strains, such as in the case of seasonal influenza. The technology is easily scalable, allowing the company to increase volume of production by simply increasing the number of plants it uses.

#### **Product portfolio and pipeline**

Medicago's first product, a Recombinant Quadrivalent Virus-Like Particle (QVLP) seasonal flu vaccine is presently under review by Health Canada. Vaccine candidates for pandemic flu, rotavirus and norovirus are being tested across pre-clinical and Phase II clinical trials. Medicago is also developing antibodies against hMPV, RSV and Opioids.

#### **Facilities**

Medicago is headquartered in Quebec City, Canada, and plans to produce COVID-19 vaccines and antibodies in its Quebec pilot plant to respond to the immediate short-term demand. The company also has a manufacturing facility in Durham, North Carolina (USA), which is currently dedicated to the production of vaccines and antibodies for its clinical trials and is expected to support the launch of the quadrivalent VLP influenza vaccine once it is approved. A new state-of-the-art manufacturing plant is under construction in Quebec City, which will be fully functional by 2023 and will have the capability to deliver up to 50 million doses of recombinant quadrivalent influenza vaccine per year.

#### **About Medicago**

Medicago is a biopharmaceutical company with more than 450 employees in Canada and the United States. Medicago's mission is to improve global health outcomes by leveraging innovative plant-based technologies for rapid responses to emerging global health challenges. Medicago is committed to advancing therapeutics against life-threatening diseases worldwide.

For more information: [www.medicago.com](http://www.medicago.com)