



Press release
For immediate publication

PBL / John Innes Centre technology instrumental in Medicago's flu vaccine production

Quebec City, Canada and Norwich, UK, 12 August 2009 – Medicago, JIC (John Innes Centre) and PBL (Plant Bioscience Limited) announced today that Medicago's outstanding achievement in producing the H1 VLP antigen in only 14 days, as revealed in the Canadian company's press release on 30th June 2009, was achieved using among other technologies, a technology invented by JIC researchers and which is licensed by PBL to Medicago

The CPMV-*HT* (Cowpea Mosaic Virus-HyperTranslatable) expression system was developed by Prof George Lomonosoff and Dr Frank Sainsbury at the John Innes Centre, UK using specific elements of comoviruses. It achieves extremely high levels of heterologous protein expression within a few days without the need for virus replication. It also has the benefit of not producing infectious viral particles and thus achieves complete bio-containment while speeding up the whole process of protein production. A patent application with inventors from the John Innes Centre has been filed by PBL, the technology transfer company of the John Innes Centre.

The CPMV-*HT* technology represents a step-change in speed and efficiency of manufacturing proteins in plants, and so is ideal for applications such as vaccine production as demonstrated by Medicago's production of the new vaccine candidate for the influenza A (H1N1) virus, also known as swine flu. "It is extremely pleasing

to see that our plant-based system has proved so useful for the rapid production of such an important vaccine candidate in a case where time is of the essence.” said Prof George Lomonosoff.

Medicago is a leading biotechnology company focused on the development, production and commercialization of protein-based vaccines using unique manufacturing systems developed from its expertise in the genetic engineering of plants.

“These recent results achieved by Medicago demonstrate again that they are an excellent partner to make use of this unique protein expression technology. We are delighted that the John Innes Centre’s first class science is used for delivering such rapid results in the production of important vaccines.” said Dr Jan Chojecki, Managing Director, PBL.

The John Innes Centre is an Institute of the Biotechnology and Biological Sciences Research Council (BBSRC). BBSRC Chief Executive, Professor Douglas Kell said: “It is great news that fundamental research funded by BBSRC has been translated into such a useful application. To have this application put to use for the benefit of worldwide health is a very satisfying outcome and shows the real value of investing in basic research in the early days so that we can have useful technologies further down the line.”

About Medicago

Medicago is committed to provide highly effective and affordable vaccines based on proprietary Virus-Like Particle (VLP) and manufacturing technologies. Medicago is currently developing a VLP vaccine to protect against H5N1 pandemic influenza, using a transient expression system which produces recombinant vaccine antigens in plants. This technology has potential to offer advantages of speed and cost over competitive technologies. It could deliver a vaccine for testing in about a month after the identification and reception of genetic sequences from a pandemic strain. This

production time frame has the potential to allow vaccination of the population before the first wave of a pandemic strikes and to supply large volumes of vaccine antigens to the world market. Additional information about Medicago is available at www.medicago.com.

About JIC:

The **John Innes Centre**, www.jic.ac.uk, is an independent, world-leading research centre in plant and microbial sciences with over 800 staff. JIC is based on Norwich Research Park and carries out high quality fundamental, strategic and applied research to understand how plants and microbes work at the molecular, cellular and genetic levels. The JIC also trains scientists and students, collaborates with many other research laboratories and communicates its science to end-users and the general public. The JIC is an Institute of the Biotechnology and Biological Sciences Research Council.

About PBL:

Plant Bioscience Limited (www.pbltechnology.com) is a technology development and intellectual property management company specialising in plant and microbial science. Established in 1994, the Company is jointly and equally owned by the Sainsbury Laboratory the John Innes Centre and the BBSRC. PBL actively identifies, protects, markets and commercialises intellectual property and materials generated from public-funded research in the plant and microbial sciences.

About BBSRC:

The Biotechnology and Biological Sciences Research Council (BBSRC) is the UK funding agency for research in the life sciences. Sponsored by Government, BBSRC annually invests around £450 million in a wide range of research that makes a significant contribution to the quality of life for UK citizens and supports a number of important industrial stakeholders including the agriculture, food, chemical, healthcare and pharmaceutical sectors. BBSRC carries out its mission by funding internationally competitive research, providing training in the biosciences, fostering opportunities for knowledge transfer and innovation and promoting interaction with the public and other stakeholders on issues of scientific interest in universities, centres and institutes.

The Babraham Institute, Institute for Animal Health, Institute of Food Research, John Innes Centre and Rothamsted Research are Institutes of BBSRC. The Institutes conduct long-term, mission-oriented research using specialist facilities. They have strong interactions with industry, Government departments and other end-users of their research.

For more information see: <http://www.bbsrc.ac.uk>