



France's National Research Agency selects the OPTIVAC project and contributes EUR 600,000 (USD 772,000) to improve the efficacy of influenza vaccines

The project is led by a consortium of three institutions based in Lyon, France; Imaxio, the VirPath laboratory at the Université Claude Bernard of Lyon and the International Center for Infectiology Research (CIRI)

The funding will accelerate the pre-clinical development of a candidate influenza vaccine with the aim of starting Phase I trials by 2017

Lyon, France - October 27, 2014 – Imaxio, a biopharmaceutical company specialized in vaccines, today announces that it has been awarded a funding of EUR 600,000 (USD 772,000) by the French National Research Agency (*Agence Nationale de la Recherche*, ANR) for the OPTIVAC project: “leveraging **O**n t-cell immune res**P**onse **T**o **I**mprove influenza **V**ACCines”.

The aim of the OPTIVAC project is to improve the efficacy of vaccines for seasonal influenza and current pandemics. To achieve this, it will develop a candidate vaccine comprising a recombinant, proprietary, and highly immunogenic version of the influenza virus nucleoprotein (NP).

The candidate vaccine from the OPTIVAC project will be administered in conjunction with current influenza vaccines with the aim of improving their efficacy, particularly in the elderly.

The consortium plans to use the funds received to complete preclinical development of the candidate vaccine within the next 24 to 36 months, entering Phase I clinical trials at the start of 2017.

The OPTIVAC project is led by a consortium from Lyon, France, comprising three specialist immunology institutions: candidate vaccine development specialist Imaxio; the VirPath laboratory at the Université Claude Bernard Lyon 1, which is specialized in the study of pathogenicity, the mechanisms of emergence of influenza viruses and the development of new therapeutic strategies; and the dedicated Immunity and Cytotoxic Lymphocytes (ICL) team at the International Center for Infectiology Research (*Centre International de Recherche en Infectiologie*, CIRI).

The ANR granted this funding under a highly competitive program, the “Generic Call for Proposals”, which funds research work that address major societal challenges. The Agency received nearly 8,500 proposals (35 per cent in the health care category). Ultimately just 800 projects were selected, including OPTIVAC.



"The funding granted by the ANR is genuine recognition of what we have accomplished in collaboration with the teams from VirPath and the CIRI. It also reflects the quality of our research," said Alexandre Le Vert, director of Imaxio. "We are confident in our IMX313 technology. This is an unprecedented opportunity to take our candidate influenza vaccine to the clinical stage over the next three years."

"The ANR funding reflects the caliber and the significance of our project," said Professor Bruno Lina, director of VirPath. "Vaccinating against influenza is a major public health challenge. Improving the cellular immune response after vaccination is a key objective. Thanks to this subsidy, our research project takes on a whole new dimension."

"We are pleased to be part of such a consortium and contribute to the development of the IMX313 technology", add Dr. Manuel Rosa-Calatrava, joint-director of VirPath. "The vaccine candidate has already generated positive preliminary results in our laboratory."

"Securing this ANR subsidy means that we can now make rapid progress in characterizing cellular responses to the influenza virus," said Dr. Jacqueline Marvel, leader of the Immunity and Cytotoxic Lymphocytes team at the CIRI (Director: Dr. François-Loïc Cosset).

With 250,000 to 500,000 deaths recorded worldwide each year, there is a strong medical need to improve the formulations of current seasonal influenza vaccines, particularly in the elderly and for numerous strains of influenza, both seasonal and pandemic (such as swine and avian 'flu).

The World Health Organization (WHO) estimates that seasonal influenza epidemics result in three to five million serious cases every year. Hospital admissions and deaths occur mainly in high-risk groups (such as the elderly, those with chronic diseases, and infants).

About Imaxio

Imaxio is a biotechnology company focused on immunology. It has a pipeline of vaccines for infectious diseases and immunotherapies in oncology that includes four internal R&D projects (one at the clinical stage), plus seven active R&D collaborations.

Imaxio is a spin-off from the University of Cambridge (UK) and the Medical Research Council (UK). It is based in Lyon, France. The proprietary antigen re-engineering technology platform IMX313 is significantly improving vaccine efficacy. Using this technology, Imaxio works alongside several prominent international academic and industrial research teams to develop recombinant vaccines for infectious diseases (Influenza, Staphylococcus Aureus, tuberculosis, etc.) plus oncology.

Imaxio has recently commercialized two pharmaceutical products for the French market: a human vaccine indicated for the prevention of an infectious work-related disease, called Spirolept(R), and Trolovol(R), an orphan drug indicated for a metabolic congenital disease.



The company owns a solid IP portfolio and collaborates with numerous international partners, including the Jenner Institute at Oxford University (UK). Nine of the sixteen Imaxio employees are dedicated to R&D activities. In 2013 its turnover reached EUR 2.7 million.

Imaxio's majority shareholder is Pradeyrol Développement, a French family office which invests in biotechnology, and specifically in immunology.

For further information: <http://www.imaxio.com>

About VirPath

The VirPath laboratory is France's national reference center for influenza viruses, and is associated with the World Health Organization. Led by Professor Bruno Lina, the laboratory is a joint facility of the Université Claude Bernard Lyon 1 and the Hospices Civiles de Lyon public hospital grouping.

Virpath combines fundamental, applied and biomedical research. The main aim of its research programs is to understand the molecular mechanisms of virus genetic recombinations, the processes of resistance to antiviral drugs and the functional interactions of influenza viruses with the host cell. This cognitive research work forms the basis for the development of more effective vaccines and new broad-spectrum antiviral treatments that do not generate resistance mutations.

Since 2010, the laboratory has assembled a portfolio of nine families of patents and has led a number of clinical trials in the fields of antivirals and vaccines production. On the basis of its technology research platform named VirNext, the laboratory is also a partner in a number of collaborative industry projects through France's Lyonbiopole, Axelera, Pégase, Medicen and Atlanpole competitiveness clusters.

For further information: <http://www.virpath.com>

About the CIRI

The CIRI (*Centre International de Recherche en Infectiologie*, International Center for Infectiology Research) was founded on January 1, 2013 at the initiative of the French National Institute of Health and Medical Research (Inserm), the French National Center for Scientific Research (CNRS), *Ecole Normale Supérieure* de Lyon, and the Université Claude Bernard Lyon 1. The CIRI has over 20 scientific teams, nearly 300 researchers, technicians and students focused on the shared aim of combating infectious diseases: the second leading cause of mortality worldwide, with 15 million deaths a year. Its multidisciplinary research programs combine microbiology, immunology, and epidemiology with clinical and applied research with the aim of rising to the key challenges of infectiology: understanding, diagnosing, preventing, and curing the main infectious diseases.

For further information: <http://ciri.inserm.fr>

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