



CALIXAR and VirPath develop an innovative manufacturing process for high performance influenza vaccines

A new antigens formulation against pandemic flu (A H1N1 virus) proved six times more effective than other vaccines

Lyon, France, September 23, 2014 – CALIXAR, a start-up providing services focused on membrane proteins, and VirPath, an academic lab specialized in the study of influenza viruses, today announce a breakthrough in the manufacturing of high performance vaccines. Their current focus is on vaccines for influenza viruses.

CALIXAR has developed the technology and chemistry to split the virus' membranes. The partners' first new formulation of vaccine antigens is directed against the A H1N1 virus, also known as pandemic flu. This formulation showed high quality and performance compared to the blockbusters vaccines already on the market. VirPath's egg-derived antigens formulations, which were extracted with CALIXAR's technology, are at least six times more active than the marketed vaccines, in terms of hemagglutinin immunogenicity and *in vivo* protection.

"I'm very pleased that our research and expertise in influenza has contributed to this new high performance formulation in vaccine antigens," said Dr Manuel Rosa-Calatrava, deputy director of VirPath. "We achieved these results by using CALIXAR's technology. Vaccination against the flu is of major importance to public health. Our improved vaccine production processes will closely support that goal."

"We will offer the influenza technology for licensing early 2015. We are also looking at other applications in the vaccine industry using the same chemistry and biochemistry approaches," said Dr Emmanuel Dejean, chairman and CEO of CALIXAR. "We are convinced that this fruitful collaboration with VirPath will pave the way for the application of our technology to a broader spectrum of vaccine candidates."

In parallel to this work, the partners are working on the native isolation of other antigens and preparing for the future development of universal vaccines, especially against influenza.

In June 2009, the WHO declared the new strain of swine-origin H1N1 as a pandemic. This novel virus spread worldwide and had caused about 17,000 deaths by the start of 2010. On August 10, 2010, the World Health Organization declared the H1N1 influenza pandemic over, saying worldwide flu activity had returned to typical seasonal patterns.

About CALIXAR

CALIXAR, based in Lyon (France), offers a unique and patented technological platform. The platform allows to isolate in solution - with the highest purity levels - full-length membrane antigens and proteins (GPCRs, Ion Channels, Transporters, Receptors and Viral Proteins), while keeping their structural and functional integrity. CALIXAR's approach represents an opportunity for pharmaceutical companies to start and work with high quality targets or antigens before formulating vaccines, developing antibodies, and/or discovering a primary lead through Structure Based Drug Design or High Throughput Screening assays. For further information: <http://www.calixar.com>

About VirPath

VitPath is an academic laboratory of the University Claude Bernard Lyon 1 and the Civil Hospitals of Lyon (France). VirPath focuses on the study of influenza viruses, from the deciphering of the mechanisms leading to their emergence and pathogenesis, to the analysis of viral interplays with cells and host factors during infection. In addition to the discovery of new means of fighting against influenza infection, VirPath leads several R&D programs to improve the industrial processes of vaccine antigens production and develop new antiviral strategies. VirPath manages clinical trials and has direct access in real time to relevant viral strains and clinical specimens. It has close input on surveillance from the French National Reference Center and the WHO international network. For further information: <http://www.virpath.com>

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