



Sanofi Pasteur Reveals its Research on a “Universal” Influenza Vaccine

- The vaccines division of Sanofi presents at the World Vaccine Congress in Spain -

Lyon, France - November 9, 2015 - [Sanofi Pasteur](#), the vaccines division of [Sanofi](#), presented today at the World Vaccine Congress being held in Madrid, Spain, on developing broadly cross-reactive antigens against seasonal and pandemic influenza. The World Vaccine Congress in Europe is in its 16th year and is a major destination for vaccine leaders to share developments in the field.

“As the world’s leader in the production of influenza vaccines, Sanofi Pasteur’s ambition is to drive innovation and to shape the future by exploring several of the leading influenza vaccine strategies,” according to Olivier Charmeil, President and CEO of Sanofi Pasteur, the company that supplied over 220 million doses of seasonal influenza vaccines in 2014.

At the World Vaccine Congress, Harry Kleanthous, PhD, Associate VP for Research discussed the paradigm shifting potential of broader-spectrum influenza vaccine approaches that stimulate protection against many influenza strains, unlike the current licensed vaccines that are designed to protect against 3-to-4 strains that are determined before the influenza vaccine production process begins each year.

“We are actively exploring the development of a more-broadly protective influenza vaccine that will be designed to prevent the seasonal mismatches that can occur and that are not addressed using the current technology,” explained Dr. Kleanthous. *“They are complementary but can be considered ‘tailored’ antigens in that they are designed to re-focus the immune response to key protective epitopes on the hemagglutinin, which is the active component of our currently licensed influenza vaccines,”* he continued. *“These antigens are still a key player in any flu vaccine, since antibodies directed against them are responsible for preventing the Flu virus from binding to and infecting the cell. Creating new antigens is a central theme in our strategy.”*

Sanofi Pasteur has an existing R&D collaboration agreement with the University of Georgia on a method that -according to Dr. Kleanthous-, could yield a novel, synthetic vaccine based on the hemagglutinin protein, designed to protect against seasonal influenza strains spanning several years, including drifted strains not yet in existence. Traditional influenza vaccine manufacturers are directed by, and provided with candidate vaccine viruses from public-health authorities determined through active surveillance of influenza viruses circulating each year.

Sanofi Pasteur’s experimental vaccine is a novel synthetic vaccine generated from key genetic sequences of many flu viruses, and is termed “computationally optimized broadly reactive antigen” or COBRA, and is designed to protect against many strains over several years, due to the common sequences many flu viruses share. The key advantage is broader coverage against several seasonal flu strains, which is important when there is a mismatch to the vaccine strain. An additional advantage of this approach is not relying upon annual strain selection, allowing year-round manufacturing.



“We are working with one of the leading infectious disease researchers from the University of Georgia, Dr. Ted Ross, who is currently engineering COBRA vaccines based on past sequences to cover as many strains as possible and to maximize the immune response to an influenza vaccine,” said Dr. Kleanthous. *“We need to find common elements that don’t change every year; study how influenza vaccines have performed in the past, testing what’s immunologically relevant for a broader-spectrum influenza vaccine. Improved influenza vaccines such as COBRA--designed to protect against drifting and co-circulating viruses, as well as other antigens that induce complimentary mechanisms of protection--are anticipated to have a significant impact on strain coverage and vaccine effectiveness,”* the researcher concluded.

According to Sanofi Pasteur’s Senior Vice President for R&D, John Shiver, PhD, a universal flu vaccine will need to be compared against the standard-of-care (seasonal vaccines), showing safety, comparable immunogenicity, and efficacy in human clinical trials over several years against a range of influenza virus strains. *“A truly universal vaccine is the ultimate goal; however, we believe that a broader-spectrum vaccine will be available first to replace the current seasonal flu vaccine given annually,”* he explained. *“Science, including vaccine R&D, tends to be an iterative process. It’s an evolution.”*

About Sanofi

Sanofi, a global healthcare leader, discovers, develops and distributes therapeutic solutions focused on patients’ needs. Sanofi has core strengths in diabetes solutions, human vaccines, innovative drugs, consumer healthcare, emerging markets, animal health and Genzyme. Sanofi is listed in Paris (EURONEXT: [SAN](#)) and in New York (NYSE: [SNY](#)).

Sanofi Pasteur, the vaccines division of Sanofi, provides more than 1 billion doses of vaccine each year, making it possible to immunize more than 500 million people across the globe. A world leader in the vaccine industry, Sanofi Pasteur offers a broad range of vaccines protecting against 20 infectious diseases. The company's heritage, to create vaccines that protect life, dates back more than a century. Sanofi Pasteur is the largest company entirely dedicated to vaccines. Every day, the company invests more than EUR 1 million in research and development. For more information, please visit: www.sanofipasteur.com or www.sanofipasteur.us

Forward Looking Statements

This press release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements are statements that are not historical facts. These statements include projections and estimates and their underlying assumptions, statements regarding plans, objectives, intentions and expectations with respect to future financial results, events, operations, services, product development and potential, and statements regarding future performance. Forward-looking statements are generally identified by the words “expects”, “anticipates”, “believes”, “intends”, “estimates”, “plans” and similar expressions. Although Sanofi’s management believes that the expectations reflected in such forward-looking statements are reasonable, investors are cautioned that forward-looking information and statements are subject to various risks and uncertainties, many of which are difficult to predict and generally beyond the control of Sanofi, that could cause actual results and developments to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. These risks and uncertainties include among other things, the uncertainties inherent in research and development, future clinical data and analysis, including post marketing, decisions by regulatory authorities, such as the FDA or the EMA, regarding whether and when to approve any drug, device or biological application that may be filed for any such product candidates as well as their decisions regarding labelling and other matters that could affect the availability or commercial potential of such product candidates, the absence of guarantee that the product candidates if approved will be commercially successful, the future approval and commercial success of therapeutic alternatives, the Group’s ability to benefit from external growth opportunities, trends in exchange rates and prevailing interest rates, the impact of cost containment initiatives and subsequent changes thereto, the average number of shares outstanding as well as those discussed or identified in the public filings with the SEC and the AMF made by Sanofi, including those listed under “Risk Factors” and “Cautionary Statement Regarding Forward-Looking Statements” in Sanofi’s annual report on Form 20-F for the year ended December 31, 2014. Other than as required by applicable law, Sanofi does not undertake any obligation to update or revise any forward-looking information or statements.



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