



**New Vaccine Targets for Influenza and Research Discovered  
by Pure Vaccine Solutions, LLC Published in PNAS**

**BIO Atlanta: Visit Pure Vaccine Solutions at Oklahoma Pavilion Booth #1333**

**OKLAHOMA CITY, OK and AUSTIN, TX - May 12, 2009** - Pure Vaccine Solutions, a division of biopharmaceutical company Pure Protein, announced today the company's Chief Scientist, Dr. William Hildebrand, University of Oklahoma Health Sciences Center, has discovered important new influenza vaccine candidates that are conserved among virus strains. These results were published January 2009 in *Proceedings of the National Academy of Sciences* (PNAS).

Using its proprietary discovery technology, Dr. Hildebrand's team identified a discrete set of peptide sequences consistently presented by Major Histocompatibility Complex (MHC) class I, HLA-B\*0702, molecules on the surface of influenza infected cells. The source of these peptide epitopes were internally expressed virus proteins previously not targeted by vaccine research. Two peptides derived from the virus nucleoprotein and one peptide from the viral polymerase were present on cells infected by three different influenza strains. More importantly, the two peptides were found to be readily recognized by cytotoxic T-lymphocytes derived from mice expressing the human HLA-B\*0702 proteins demonstrating that consistently presented peptides derived from intracellular proteins are recognized by the mammalian immune system.

These data support the exploration of these peptide targets as vaccine compositions to stimulate a broad immune response to protect against a number of influenza strains in contrast to the type-specific immunity stimulated by present vaccines. The results of the research are reported on in the PNAS journal article, "[HLA class I molecules consistently present internal influenza epitopes.](#)"

According to the CDC, every year in the US:

- 5% to 20% of the population gets the flu;
- more than 200,000 people are hospitalized from flu-related complications;
- approximately 36,000 people die from flu-related causes.

Some people, including older people, young children, and people with certain health conditions (such as asthma, diabetes, or heart disease), are at high risk for serious flu complications. Improved vaccines are important to protect these members of the population.

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### **About Pure Vaccine Solutions, LLC**

Pure Vaccine Solutions, LLC is a division of Pure Protein, LLC. Pure Protein is a biopharmaceutical company specializing in immunology tools for diagnostics and vaccine development to address unmet medical needs and major market opportunities for new disease targets. Pure Protein was formed to commercialize research developed at the University of Oklahoma Health Sciences Center. Pure Vaccine Solutions' Vaccine Discovery System is based on a proprietary soluble Human Leukocyte Antigen (sHLA) production method that generates pure, single species antigens with increased yield and correct processing, enabling powerful insight into the biology of diseased cells. Pure Vaccine Solutions is funded and managed by life sciences technology investment and management company, [Emergent Technologies, Inc.](http://www.emergenttechnologies.com) For more information, visit <http://www.pureproteinllc.com/vaccine/index.html>

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### Article Citation

HLA class I molecules consistently present internal influenza epitopes. Wahl A, Schafer F, Bardet W, Buchli R, Air GM, Hildebrand WH. Proc Natl Acad Sci U S A. 2009 Jan 13;106(2):540-5.

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