

Selecta Biosciences' Synthetic Vaccine Particles Instrumental in Breakthrough Research on Mucosal Vaccines

June 18, 2015 12:44 PM ET

Using technology exclusively licensed by Selecta, proof-of-concept studies on a novel approach to mucosal vaccines conducted by Selecta's founders was published in Science

Therapeutic applications of novel SVP mucosal vaccines include prevention of sexually transmitted diseases, such as Chlamydia trachomatis, and serious lung infections, such as respiratory syncytial virus (RSV)

Watertown, Mass. –June 18, 2015– Selecta Biosciences, Inc., a clinical stage biotechnology company developing a novel class of targeted antigen-specific immune therapies using synthetic vaccine particles (SVP), today announced a publication in the prestigious journal *Science* describing the use of SVP to create a novel vaccine technology designed to target mucosal tissues. For many chronic and serious infectious diseases that thrive in mucosa, conventional vaccine approaches have not proven effective for reasons now elucidated in the publication. The new research, by Selecta's founders, Professors Ulrich von Andrian and Omid Farokhzad at Harvard Medical School and Robert Langer at Massachusetts Institute of Technology further demonstrates preclinical proof-of-concept for an SVP product to prevent *Chlamydia trachomatis* infections.

"There are several examples where conventional vaccines exacerbated infections in human clinical trials, including *Chlamydia* and RSV," said Ulrich von Andrian, MD, PhD, Mallinckrodt Professor of Immunopathology at Harvard Medical School and the co-founder of Selecta who led this study. "For the case of *Chlamydia*, we now have a mechanistic explanation for the failure of traditional vaccines combined with an SVP based vaccination strategy that can overcome these challenges and create a vaccine with the potential to engender the desired robust immunoprotection."

Selecta has exclusively licensed the technology and know-how surrounding these novel SVP mucosal vaccines, complementing the extensive intellectual property estate around the company's SVP vaccines and immunotherapies. Novel mucosal vaccines based on the SVP platform could have broad therapeutic potential for the prevention of mucosal infections, including sexually transmitted diseases, such as *Chlamydia trachomatis* and *Gonococcus*, as well as serious lung infections, such as respiratory syncytial virus (RSV).

"The demonstration of protective immunity in a humanized model for *Chlamydia* infections is a real breakthrough," said Werner Cautreels, PhD, President and CEO of Selecta Biosciences. "Consistent with our company's strategy for infectious disease indications, we will actively seek value-adding partners with whom to develop and commercialize SVP for mucosal vaccines."

By attaching an SVP optimized for immune boosting to an inactive *Chlamydia* pathogen, mice with an implanted human immune system, known as BLT mice, were, for the first time ever, durably protected from infection upon challenge, while conventional vaccine approaches caused disease exacerbation. SVP are designed to stay intact until taken up by dendritic cells (DC), immune cells that are essential for long-term immune defense. In the *Science* publication, researchers provided insights into the mechanism of action of vaccines in mucosal infections, showing that only SVP activated the population of dendritic cells that surveil mucosal tissue for infections, while other vaccine constructs did not meaningfully activate these critical dendritic cells.

About Selecta

Selecta Biosciences, Inc. is a clinical-stage biotechnology company developing novel drugs that use immune modulating nanomedicines to generate targeted antigen-specific immune responses to prevent and treat disease. Selecta's proprietary Synthetic Vaccine Particle (SVP) platform creates a novel paradigm in immunotherapeutics and vaccines, enabling completely new applications while offering the potential of improved efficacy and safety profiles.

Selecta's immunomodulatory SVP can induce antigen-specific immune tolerance, enabling them to be applied in a variety of therapeutic areas with large unmet medical need. The company is focused on three key near-term applications: inhibition

of immunogenicity of biologic therapies, treatment of allergies, and treatment of autoimmune diseases. Immunogenicity adversely affects the safety and efficacy profile for many biological therapies, and is known to have caused the termination of a number of promising biological therapies in clinical development. Selecta's SVP is a product engine that has the potential to unlock the full therapeutic value of biologic therapies.

Through proprietary products and collaborations with leading pharmaceutical companies and research organizations, Selecta is building a pipeline of product candidates to address unmet medical needs in serious and chronic diseases. Selecta Biosciences, Inc. is based in Watertown, Massachusetts, USA. For more information, please visit www.selectabio.com.

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1. G. Stry, A. Olive, A.F. Radovic-Moreno, D. Gondek, D. Alvarez, P.A. Basto, M. Perro, V.D. Vrbanac, A.M. Tager, J. Shi, J.A. Yethon, O.C. Farokhzad, R. Langer, M.N. Starnbach, U.H. von Andrian, "A mucosal vaccine against Chlamydia trachomatis generates two waves of protective memory T cells" Science 348, aaa8205 (2015). DOI: 10.1126/science.aaa8205

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