Joseph Horzempa, J Vaccines Vaccin 2012, 3:4
http://dx.doi.org/10.4172/2157-7560.S1.002

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Vaccines and Vaccination

August 20-22, 2012 Hilton Chicago/Northbrook, USA

Genetic modification of Francisella tularensis LVS for use as a novel live vaccine platform

Joseph Horzempa
West Liberty University, USA

Francisella tularensis LVS is an attenuated bacterium that has been used as a live vaccine. Patients immunized with this organism show a very long-term memory response (over 30 years post vaccination) indicated by a strong cell-mediated immune response. Based on the fact that F. tularensis LVS is such a potent vaccine, we propose to use this organism as a novel vaccine platform. We have developed numerous molecular tools to modify the genome of F. tularensis and to facilitate exogenous gene expression including mutagenesis strategies and promoter identification. Interestingly, introducing attenuating mutations that enhance the stimulatory nature of LVS do not necessarily enhance this strain's protective efficacy. Currently, licensed vaccines against important bacterial pathogens such as Pseudomonas aeruginosa and Staphylococcus aureus are not available. Because many pathogenic strains of these organisms are also drug resistant, the need for effective vaccines is magnified. Ongoing investigations involve engineering F. tularensis LVS to express genes encoding protective epitopes of either P. aeruginosa or S. aureus.

Biography

Joseph Horzempa completed his Ph.D. from Duquesne University in 2006, and conducted his postdoctoral research at the University of Pittsburgh School of Medicine from 2006-2011. He is currently an Assistant Professor of Biology at West Liberty University in West Virginia. He has authored 14 papers in peer-reviewed journals, received a NRSA fellowship (T32), and earned a NIAID research scholar development award (K22). He currently draws funding from NIAID, NASA, and WV-INBRE.

joseph.horzempa@westliberty.edu