Tian Wang, 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

Induction of protective adaptive immunity against attenuated west nile virus

Tian Wang
The University of Texas medical Branch, USA

West Nile virus (WNV), a neurotropic, plus-sensed flavivirus, is an emerging public health threat, particularly in the elderly and immunocompromised population. Currently, no vaccines are available for humans. The development of safe and effective vaccines against WNV remains as a high priority. The nonstructural (NS) proteins of WNV have been associated with participation in viral replication and evasion of host innate immune defenses. By using a murine model of WNV infection, we found that an attenuated WNV strain, which has genetic mutations in NS4B protein induced higher levels of innate cytokines and T cell-mediated immune responses in mice than wild-type strain, suggesting a high potential for a vaccine candidate. Toll-like receptors (TLRs) recognize pathogen-associated molecular patterns, play an essential role in the initiation of innate immunity to viral infection. The core TLR signaling pathway utilizes myeloid differentiation primary response gene 88 (Myd88) as the primary adaptor. Our results showed that the attenuated WNV NS4B mutant induced higher innate and adaptive immune responses partially dependent on Myd88-mediated signaling. Investigation of the mechanisms by which WNV NS4B mutants induce higher protective immunity can be utilized as a paradigm to aid in the rational development of efficacious live attenuated flavivirus vaccines.

Biography

Dr. Tian Wang received her PhD in Cellular Immunology in 2000 at the University of Texas Medical Branch at Galveston. In 2004, she completed a Postdoctoral training at Yale University, school of Medicine. In 2005-2008, she was an Assistant Professor at the Department of Microbiology, Immunology and Pathology at Colorado State University. Currently, Dr. Wang is an Associate Professor at the Department of Microbiology & Immunology and Department of Pathology at the University of Texas Medical Branch at Galveston. She has published 34 peer-reviewed papers in reputed journals.

ti1wang@utmb.edu