Sita Awasthi, J Antivir Antiretrovir 2015, 7:4
http://dx.doi.org/10.4172/1948-5964.C1.023

OMICS International
conferenceseries.com

5th World Congress on
Virology
December 07-09, 2015 Atlanta, USA

Sita Awasthi
University of Pennsylvania, USA

Immunogenicity evaluation of a subunit vaccine for genital herpes in Rhesus macaques

About 500 million people are infected with Herpes Simplex Virus type 2 (HSV-2) worldwide. Genital HSV-2 infection is one of the major causes of genital ulcer disease and the risk of HIV-1 acquisition and transmission by 3-4 folds in humans. Efforts to prevent genital ulcer disease with acyclovir failed to reduce HIV-1 acquisition or transmission, supporting the need for an effective vaccine. We developed a trivalent gC2/gD2/gE2 (HSV-2 glycoprotein C, D and E) subunit vaccine that generates high levels of neutralizing antibodies, blocks HSV-2 immune evasion from complement, blocks IgG-Fc binding to the HSV-2 IgG Fc receptor and is highly efficacious in preventing genital disease and viral shedding in guinea pigs. Here we present an immunogenicity evaluation of gC2/gD2/gE2 vaccine in macaques. Female macaques were immunized three times four weeks apart with 20µg of each gC2, gD2, and gE2 glycoprotein or 20µg gC2 alone with CpG and alum as adjuvants. After the third immunization, plasma analysis showed high titer antibody responses to each antigen, high titer neutralizing antibodies, and antibodies that blocked complement C3b binding to gC2 and IgG Fc binds to gE2. Six months after the third vaccination, the immune responses to each glycoprotein had declined 2-3 folds, but boosted within 2-weeks after a booster immunization administered at 9 months. Additionally, we detected antigen specific antibody response in vaginal fluid. Importantly, analysis of PBMCs from macaques that were immunized with gC2 alone, showed a gC2 specific CD8 T cell response after 3 immunizations. In addition, antigen specific poly-functional CD4 T cell responses are induced in the trivalent vaccine group. Our results show that the trivalent gC2/gD2/gE2 subunit antigen vaccine generates highly potent immune responses in Rhesus macaques and may prove to be a promising genital herpes vaccine candidate for future trials in human.

Biography

Sita Awasthi has received her PhD in Biochemistry from Devi Ahilya University at Indore, India and her Postdoctoral training from University of Pennsylvania at Philadelphia. Currently, she is a Research Assistant Professor at University of Pennsylvania, Pearlman School of Medicine, Infectious Disease Division. Her research interests are HSV-2 vaccine development against genital herpes disease and HSV-2 HIV-2 co-infections. She has published numerous research articles and serving as an Editorial Board Member of *Journal of anti-virals and anti retrovirals* and *Journal of Immunoassay and Immunochemistry.*

sawasthi@mail.med.upenn.edu

Notes: