Molalegne Bitew, J Vaccines Vaccin 2014, 5:5
http://dx.doi.org/10.4172/2157-7560.S1.021

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference on
Vaccines & Vaccination
September 24-26, 2014 Valencia Convention Centre, Spain

Expression profile of cytokinine transcripts and cell mediated immune response in peripheral blood mononuclear cells of sheep following vaccination of pentavalent bluetongue vaccine

Molalegne Bitew
Jimma University, Ethiopia

Recent invasion of multiple bluetongue virus serotypes (BTV) in different regions of the world necessitates urgent development of efficient vaccine that aims numerous serotypes. In this experimental study, cell mediated immune response and protective efficacy of binary ethylenimine (BEI) inactivated montanide adjuvanted pentavalent (BTV-1, 2, 10, 16 and 23) vaccine was evaluated in sheep against challenge with homologous serotypes in their respective group. Upon vaccination and challenge, it was found that both unvaccinated and vaccinated sheep peripheral blood mononuclear cells (PBMCs) exhibited expression of IFN-α, IL-2, IL-6, IL-12, IFN-γ and TNF-α transcripts. However, compared to unvaccinated ones, PBMCs of vaccinated sheep showed significant ($P<0.05$) up regulation of these cytokines at certain point of time. On the other hand, there was a significant increase in Mean±SD percentage of $CD8^+$ T cells after 7 days post challenge (DPC) but, the Mean±SD percentage of $CD4^+$ T-cell population slightly declined at 7 DPC and enhanced after 14 DPC. There was also significant difference ($P<0.05$) of $CD8^+$ and $CD4^+$ T cells population between vaccinated and unvaccinated animals. The vaccine also significantly ($P<0.05$) reduced BTV RNA load in PBMCs of vaccinated animals than unvaccinated animals following the challenge. There were no significant difference ($P>0.05$) in cytokine induction, and BTV RNA load $CD8^+$ and $CD4^+$ cell count among BTV-1, 2, 10, 16 and 23 serotype challenges except significant increase Mean±SD percentage of $CD8^+$ by BTV-2. These findings put forwarded that binary ethylenimine inactivated montanide adjuvanted pentavalent bluetongue vaccine has stimulated cell mediated immune response and most importantly reduced the severity of BTV-1, 2, 10, 16 and 23 infections following challenge in its respective group.

molalegne23@yahoo.com