Syamal Roy, J Vaccines Vaccin 2014, 5:5
http://dx.doi.org/10.4172/2157-7560.S1.022

OMICS Group Conferences
Accelerating Scientific Discovery

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

Reversal of poor peptide-MHC II stability in *Leishmania donovani* infection by liposomal cholesterol: Implication in therapy

Syamal Roy
Indian Institute of Chemical Biology, India

We show that *Leishmania donovani* infected macrophage (I-Mϕ) are incapable to stimulate MHC II restricted T cells but not MHC I restricted T cells. Such I-Mϕ could stimulate MHC II restricted T cells at high antigen concentration indicating that general antigen processing and transport of peptide-MHC II complex to the cell surface are not defective. Analysis of kinetic parameters like kon and koff were compromised in I-Mϕ as compared to normal macrophages (N-Mϕ). The koff in I-Mϕ is~ 10 times faster than N-Mϕ. The kon in I-Mϕ is ~ 16 times slower than N-Mϕ. Thus I-Mϕ is defective in peptide-MHC II complex formation and stability. The conformation of MHC II in I-Mϕ changes as observed by binding of conformation specific monoclonal antibody binding. Previously we showed that membrane cholesterol decreases in I-Mϕ. The treatment of I-Mϕ with liposomal cholesterol restored peptide-MHC II complex formation and stability coupled with restored conformation of MHC II. The transmembrane domain of MHC II interacts with cholesterol with high affinity and specificity. Binding of cholesterol changes confoamrion of the transmembrane domain. Molecular dynamic study showed that in absence of cholesterol conformation of MHC II is different from in presence of cholesterol. Thus in *Leishmania donovani* infection, membrane cholesterol decreases that leads to change in conformation of MHC II and consequently reduces peptide-MHC II stability and which could be reversed by liposomal cholesterol treatment.

sroy@iicb.res.in