

Mala D Menon, Journal of Vaccines & Vaccination 2015, 6:5 http://dx.doi.org/10.4172/2157-7560.C1.032

8th Indo Global summit and Expo on **Vaccines, Therapeutics & Healthcare** November 02-04, 2015 HICC, Hyderabad, India



Mala D Menon

Bombay College of Pharmacy, India

Liposomal vaccine delivery of *Haemophilus influenza* type B (Hib) for improved efficacy-A feasibility study

Current immunization preparation for *Haemophilus influenzae* type B (Hi-b) infections is based on Hib polysaccharide – tetanus toxoid (TT) conjugate, which is administered to children by i.m. and s.c. injection. The conjugate preparation process involves several cumbersome and complex steps and harsh reagents, resulting in antigen losses. As an alternative, particulate carriers can be developed to co-entrap the antigen and TT, which are reported to ensure good adjuvant effect, to potentiate T-cell dependent immune response. In the present study, Hi-b capsular polysaccharide (Hib-CPS) and Tetanus toxoid (TT) co-entrapped liposomes were prepared by dehydration-rehydration of vesicles method and characterized for physicochemical properties. Further, comparative *in vivo* efficacy evaluation of the liposomal systems with conventional Hib-TT conjugate vaccine, was carried out in Wistar rats, wherein the antibody titers (IgG and IgA) in serum, nasal lavage and BAL were assessed. In addition, lymphocyte proliferation assay was carried out on blood samples of the immunized animals to assess T cell response (*in vivo* efficacy study has revealed increased IgG and IgA titers with liposomal system, and good and comparable lymphocyte proliferation index values, indicating T-cell response. In conclusion, Hi-b polysaccharide co - entrapped with TT in liposomal systems can be an effective alternative to conventional Hi-b-TT conjugate vaccine.

Biography

Mala D Menon completed her PhD in Pharmaceutics from Mumbai University and is currently a Professor of Pharmaceutics at the Bombay College of Pharmacy, Mumbai, India. Her experience includes industry-2 yrs and teaching–30 years. Her key research areas are drug delivery systems-conventional & novel type, pulmonary & nasal delivery systems, novel vaccine delivery approaches, especially mucosal vaccines, probiotic formulations, novel veterinary formulations. Her research projects are Government & Industry sponsored, around 25 and she has 34 publications in both national & international. She gave more than 80 presentations, has 2 book chapters and 4 patent applications filed.

maladm@rediffmail.com

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