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Pentavalent outer membrane vesicles of *Vibrio cholerae* induce adaptive immune response and protective efficacy in both adult and passive suckling mice model

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Recently, we demonstrated oral immunizations with single serotype outer membrane vesicles of *Vibrio cholerae* induced serogroup specific protective immunity in RITARD model. In our present study, we advanced our research by formulating multi-serotype outer membrane vesicles, mixing the OMVs of five virulent *V. cholerae* strains. Four doses of oral immunization with cholera pentavalent outer membrane vesicles (CPMVs) induced *V. cholerae* specific B and T cell responses. CPMVs-immunized mice generated long lasting serum IgG, IgA, IgM as well as mucosal sIgA and also elicited higher percentage of CD4+T cell distribution in spleen. Our study revealed that *in vitro* CPMVs-activated dendritic cells were secreting T cell polarizing cytokines, IL-12p40, IL-4, IL-6 and IL-1β. Moreover, purified splenic CD4+T cells of immunized mice also secreted IL-4, IL-13 and IL-17 cytokines, indicating the initiation of Th2 and Th17 cell mediated immune response. CPMVs immunized adult female mice and their offspring were significantly protected from heterologous challenge with wild type of *V. cholerae*. It could be exploited for the development of a novel non-living vaccine against circulating cholera in the near future.

Biography

Ritam Sinha completed his Masters' degree in Microbiology from Vidyasagar University. He has joined in Division of Bacteriology, National Institute of Cholera and Enteric Diseases, Beliaghata, Kolkata for his PhD degree under guidance of Dr. Hemanta Koley, Scientist-D, NICED. His current research interest is signal transduction pathways of cellular immunity during *V. cholerae* infection and vaccination in different animal models. He has registered for PhD course in Jadavpur University, Kolkata. He has published six originals articles in international peer review journals and submitted more than six abstracts in different national and international conferences.

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