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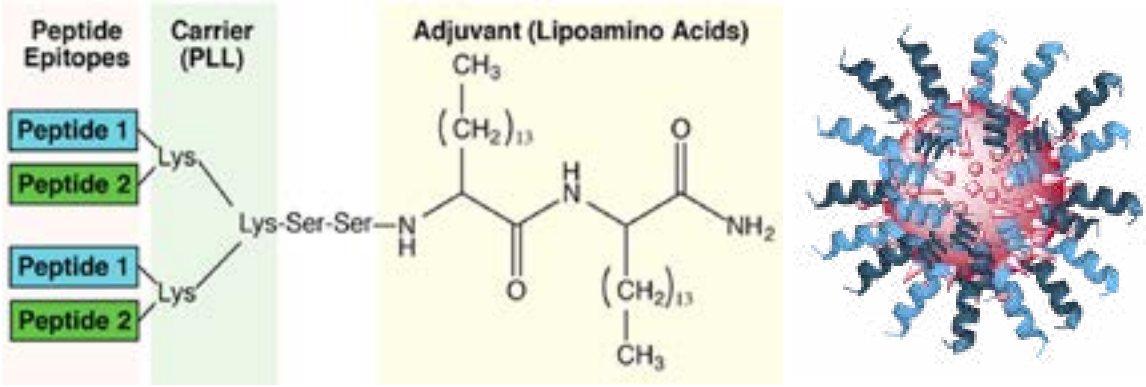
Polyelectrolyte coated liposome delivery systems against Group A *Streptococcus* (GAS) infection

We have developed an oral vaccine delivery system to prevent infection by GAS by encapsulating lipid core peptide (LCP) antigens into the liposomes. We synthesised the LCP construct by attaching C-16 lipoamino acid to J-14 (B-cell epitope derived from GAS M-protein) and P25 (CD4+ T helper cell epitope) using a microwave assisted solid phase peptide synthesis method. Liposomes were formulated incorporating the LCP and optimized for charge and lipid content using a thin film formation method. Optimized liposomes were coated with oppositely charged polyelectrolytes (positively charged trimethyl chitosan (TMC) and negatively charged sodium alginate) in a layer-by-layer approach. Optimized formulations were investigated for their efficiency of uptake by intestinal immune cells and ability to induce mucosal IgA and systemic IgG responses.



Biography

Istvan Toth PhD, DSc, is a Chemical Engineer and an internationally recognized expert in Drug Delivery. His major research interests are immunoadjuvants, carbohydrates, lipids, peptides, nucleosides and nucleotides. New developments in drug/vaccine delivery are clearly likely to have enormous economic impacts upon the pharmaceutical and biotechnology industries. He is a Fellow of the Royal Australian Chemical Institute (FRACI) the Queensland Academy of Science and Art (FQA) and the Hungarian Academy of Sciences.

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