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Development and characterization of LTA-appended chitosan nanoparticles for mucosal immunization against hepatitis B

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Mucosal immunization frequently results in the stimulation of both mucosal and systemic immune responses, whereas systemic immunization typically induces systemic responses without activating the mucosal immune system. The present study was aimed at exploring the targeting potential of LTA-anchored chitosan nanoparticles (CH-NP) specifically to M cell following oral immunization. The lectinized CH-NP exhibited 7–29% coupling capacity depending upon the amount of glutaraldehyde added. Induction of the mucosal immunity was assessed by estimating secretory IgA level in the salivary, intestinal and vaginal secretions, and cytokine (IL-2 and IFN- g) levels in the spleen homogenates. The results demonstrated that LTA anchored CHNP elicited strong humoral and cellular responses and hence could be a competent carrier-adjuvant delivery system for oral mucosal immunization against hepatitis B.

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