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FIRST CHARACTERIZATION OF IMMUNOGENIC CONJUGATES OF VI NEGATIVE SALMONELLA TYPHI O-SPECIFIC POLYSACCHARIDES WITH REPA PROTEIN FOR VACCINE DEVELOPMENT

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Efficacious typhoid vaccines for young children will significantly reduce the disease burden in developing world. The Vi polysaccharide based conjugate vaccines (Vi-rEPA) against ***Salmonella*** Typhi Vi positive strains has shown high efficacy but may be ineffective against Vi negative S. Typhi. In this study, for the first time, we report the synthesis and evaluation of polysaccharide-protein conjugates of Vi negative S. Typhi as potential vaccine candidates. Four different conjugates were synthesized using recombinant exoprotein A of ***Pseudomonas aeruginosa*** (rEPA) and human serum albumin (HSA) as the carrier proteins, using either direct reductive amination or an intermediate linker molecule, adipic acid dihydrazide (ADH). Upon injection into mice, a significantly higher antibody titer was observed in mice administrated with conjugate-1 (OSP-HSA) (P=0.0001) and conjugate 2 (OSP-rEPA) (P≤0.0001) as compared to OSP alone. In contrast, the antibody titer elicited by conjugate 3 (OSPADH-HSA) and conjugate 4 (OSPADH-rEPA) were insignificant (P=0.1684 and P=0.3794, respectively). We conclude that reductive amination is the superior method to prepare the S. Typhi OSP glycoconjugate. Moreover, rEPA was a better carrier protein than HSA. Thus OSP-rEPA conjugate seems to be efficacious typhoid vaccines candidate, it may be evaluated further and recommended for the clinical trials

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