Prediction and Identification of a Permissive Epitope Insertion Site for St Toxoid in cfaB from Enterotoxigenic Escherichia coli

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Abstract : Enterotoxigenic Escherichia coli (ETEC) is the most common cause of non-inflammatory diarrhea in the developing countries, resulting in approximately 20% of all diarrheal episodes in children in these areas. ST is one of the most important virulence factors and CFA/I is one of the frequent colonization factors that help to process of ETEC infection. ST and CfaB (CFA/I subunit) are among vaccine candidates against ETEC. So, ST because of its small size is not a good immunogenic in the natural form. However to increase its immunogenic potential, here we explored candidate positions for ST insertion in CfaB sequence. After bioinformatics analysis, one of the candidate positions was selected and the chimeric gene (cfaB*st) sequence was synthesized and expressed in E. coli BL21 (DE3). The chimeric recombinant protein was purified with Ni-NTA columns and characterized with western blot analysis. The residue 74-75 of CfaB sequence could be a good candidate position for ST and other epitopes insertion.

Keywords : bioinformatics, CFA/I, enterotoxigenic E. coli, ST toxoid
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