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عنوان مقاله:

Expression of Recombinant Protein B Subunit Pili from Vibrio Cholera

محل انتشار:

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خلاصه مقاله:

Background & Aims: Vibrio cholerae is a gram-negative bacterial pathogen that causes cholera disease. Following ingestion by a host and entry into the upper intestine, V. cholera colonizes and begins to emit enterotoxin. One of the most pathogenic factors of Vibrio cholera is toxin-coregulated pili (TCP). ToxinCoregulated pili is as the primary factor requiered for the colonization and insistence of bacteria in the small intestine. The toxin-coregulated pili are bundle-forming pili that are coordinately regulated with cholerae toxin (CT). The CT operon is part of the genome of the cholera toxin bacteriophage (CTXQ) which utilizes TCP as its receptor. The aim of this study is to produce a recombinant vaccine for V. cholerae in the future. Methods: The tcpB gene was amplified by Polymerase chain reaction (PCR) method and subcloned into pET۳۲a expression vector. Escherichia coli BL۲۱ (DE۳) plysS competent cells were transformed by pET۳۲a - tcpB recombinant plasmid. In different media with changing the parameters of nutrient content like glucose as carbon source and yeast extract as nitrogen source, protein expression was induced by using IPTG. Recombinant protein were purified by affinity chromatography (Ni-NTA). The concentration of Recombinant proteins measured according to Bradford assay. Results: The sequencing results by Sanger method showed a similar sequence as tcpB gene. Escherichia coli BL۲۱ plysS was transformed with TCPB-pET۳۲a and gene expression was induced by IPTG. The expressed protein was purified by affinity chromatography and Ni-NTA kit. Conclusion: Recombinant protein tcpB was produced in the cytoplasm of Escherichia coli BL۲۱ plysS, by pET۳۲a expression vector. Therefore, utilization of this protein in Escherichia coli BL۲۱ plysS by expression vectors such as pET۳۲a is possible.

کلمات کلیدی:

pili, Vibrio Cholerae, Polymerase chain reaction (PCR), Recombinant Proteins, Escherichia coli

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