عنوان مقاله:

Construction of a New Fusion Protein Vector Associated to Fibronectin Binding Protein A and Clumping Factor A Derived from Staphylococcus aureus NCTC۸۳۲۵

محل انتشار:

مجله علوم پایه پزشکی ایران, دوره 12, شماره 1 (سال: 1388)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

Objective(s) Staphylococcus aureus is a leading cause of many nosocomial and community acquired infections. According to many reports, antibiotic therapy can not guarantee the eradication of S. aureus infections. Thus designing an adhesin based vaccine could restrain the S. aureus infections. This study designed for construction of a new fusion protein vaccine against S. aureus infections based on adhesin molecules fibronectin binding protein A (FnBPA) and clumping factor A (ClfA). Materials and Methods Bioinformatic experiments were performed using Oligo analyzer and DNAMAN softwares. The fragments corresponding to fnbA binding domain and a C-terminal fragment from clfA were amplified from S. aureus NCTC۸۳۲۵ genomic DNA. Purified PCR products and the vector, pET۱۵b, were digested with Nco\ and BamHI. The digested PCR products were hybridized together and then ligated to digested vector. Finally incomplete construct was assembled by Taq DNA polymerase. To quick confirmation of cloning procedure the new construct designated pfnbA-clfA was digested with Ncol and BamHI. To further verification, the product was sent for sequencing. Results The data based on bioinformatic analysis showed no homology between fusion protein and human proteins. Digestion of new vector with Ncol and BamHI confirmed the ligation of fusion protein sequence into pET۱۵b. Sequencing results verified the integrity of target sequences. Conclusion This study is the first effort to construct a new fusion protein vector based on S. aureus adhesins using a new design. This project is being continued to study the expression and biological activity of the fusion protein in a cell culture model.

کلمات کلیدی:
Cell adhesion molecules, Fusion protein vaccine, Staphylococcus aureus