

عنوان مقاله:

In-vitro Evaluation of the Antibacterial and Cytotoxicity Activity of the PAD ϵ Antigen of Bacillus anthracis as a vaccine candidate

محل انتشار:

دوفصلنامه آزمایشگاه پزشکی مدرن، دوره 5، شماره 2 (سال: 1401)

تعداد صفحات اصل مقاله: 9

نویسندگان:

Mohsen Parsa
Jamil Zargan
Hossein Honari
Ashkan Hajinourmohammadi
Seyyed Mohsen Mousavi
Hani Keshavarz Alikhani

خلاصه مقاله:

Introduction: Infectious diseases are one of the main causes of death worldwide. This has driven scientists to invest in extraction and identification of antimicrobial agents from natural toxins and presentation of novel antibiotics and vaccines. The aim of the current study is to investigate the antibacterial and cytotoxicity effects of the protective antigen domain ϵ (PAD ϵ) from Bacillus anthracis as a strong immunogen and vaccine candidate for B. anthracis. **Material and Methods:** In this study, the antibacterial effect of the antigen was evaluated in concentrations of 0.28-4.5 μ g/ml using MTT reduction and MIC assays and the anticancer effect of the recombinant PAD ϵ on MCF-7 cell line was examined in concentrations of 0.5-2 μ g/ml via MTT, neutral red uptake, and comet assays. NO, GSH and catalase determination assays following the treatment with PAD ϵ was also evaluated. **Results:** According to the antibacterial results, PAD ϵ did not show any antibacterial effect against S. aureus, but very little inhibition on E. coli cells' growth was recorded. The results of MTT and neutral red assays showed that this antigen has a significant inhibiting effect on cancer cell growth. Comet assay results showed that PAD ϵ can cause death of breast cancer cells by apoptosis induction. NO, GSH and catalase determination assays did not show any significant fluctuations following the treatment with PAD ϵ . **Conclusion:** Our results showed that this antigen does not have any antibacterial effect but it can inhibit the proliferation of breast cancer cells, making PAD ϵ a candidate for producing antitumor drugs

کلمات کلیدی:

Bacillus anthracis, PAD ϵ , Antibacterial, Cell toxicity, Anticancer

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1540865>

