## عنوان مقاله:

An Approach for Recombinant Epidermal Growth Factor Purification Using an Elastin-Like Protein Tag

## محل انتشار:

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## خلاصه مقاله:

Introduction: Wide applications in research, clinical and cosmetic industry of human epidermal growth factor (hEGF) made it a research interest target. Its production in different expression systems has shown several limitations. Recombinant expression of hEGF in E. coli is always accompanied by inclusion body formation. The object of this study is to the evaluation of a chromatography-independent approach for the production of EGF in E. coli as soluble form. Materials and Methods: In order to evaluate a chromatogram independent purification approach for recombinant hEGF production in a soluble form, the hEGF gene was fused to an elastin-like protein (ELP) and expressed in E. coli BL۲۱ (DE۳) using pET۲۶b expression vector for secretion the product into periplasmic space. Results: Periplasmic protein content analysis confirmed that the recombinant protein is secreted into the periplasm. The purification process was done by using ۰.۴ M ammonium sulfate in two cycles of inverse phase transition (ITC). After two cycles of purification, purity reached more than ۹۵%. Western blotting analysis with the monoclonal anti-EGF antibody has confirmed the accuracy of EGF. Biological activity of the purified protein was investigated on NIH-۳T۳ cell line and results indicated EGF-induced proliferation in treated cells. Our results showed periplasmic expression is the proper approach to the production of soluble recombinant hEGF. By using ELP fused to EGF, the purification process was established without applying chromatography which will result in decreasing in final costs. Conclusions: .This study introduced a new economic and efficient approach to the production and purification of recombinant hEGF

## کلمات کلیدی:

hEGF, inverse phase transition, periplasm, Protein Purification