

عنوان مقاله:

Comparison of CXCL10 expression in E. coli and Pichia pastoris

محل انتشار:

بیستمین کنگره بین المللی میکروب شناسی ایران (سال: 1398)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Samira Mahmoudi - *Department of Microbial Biotechnology, School of Biological Sciences, Islamic Azad University North Tehran Branch, Tehran, Iran*

Tahereh Sadeghian-Rizi - *Department of Pharmaceutical Biotechnology, School of Pharmacy, Isfahan University of Medical Sciences, Isfahan, Iran*

Mehrnoush Bayat - *Department of Microbiology, School of Paramedicine, Islamic Azad University Boroujerd Branch, Boroujerd, Iran*

Ali Jahanian-Najafabadi - *Department of Pharmaceutical Biotechnology, School of Pharmacy, Isfahan University of Medical Sciences, Isfahan, Iran*

Abbas Akhavan Sepahi - *Department of Microbial Biotechnology, School of Biological Sciences, Islamic Azad University North Tehran Branch, Tehran, Iran*

خلاصه مقاله:

Introduction and Objectives: Bacterial protein expression system is one of the most widely used system to produce recombinant proteins due to two important features, fast and high production ability and low cost of production. In contrast, yeasts are often used to produce recombinant proteins as a eukaryotic host. In addition to grow fast and cost less, this host is used to recombinant proteins that cannot be produced in the prokaryotic system because of the need for proper folding and glycosylation. The aim of this study was Comparison of Expression of inflammatory chemokine CXCL10 in E. coli and Pichia pastoris. **Materials and Methods:** The encoding sequence of the CXCL10 was codoned in E. coli BL21 (DE3) or Pichia pastoris. Then, the coding sequences were cloned in frame with 6 His-tagged sequence into pET28a plasmid for bacterial expression, and pPICZA plasmid for yeast expression and the expression was analyzed by SDS-PAGE, dot- and Western blotting. **Results:** Protein expression was investigated in E. coli by incubating at 180 rpm, 37 ° C for 4 hours after induction by IPTG 1 mM. Also, protein expression in the Pichia was evaluated at 200 rpm, 28 ° C for 96 hours, with induction by methanol every 24 hours. **Conclusion:** By analyzing the SDS-PAGE results, it was found that the recombinant protein was well expressed in both hosts. The expression level in the bacteria was significantly higher than the yeast, as well the results of this study indicate that the expression of the recombinant protein in the Pichia started from 48 hours after induction and the highest expression of this protein in the yeast was observed in 96 hours after induction, while this level is considerably lower than protein expression in bacterial host. Of course due to PTM, it is suggested that expression in the yeast should be optimized

کلمات کلیدی:

Expression, E. coli, Pichia pastoris, Expression assessment, Comparison of protein expression

