

生物化学工程、制药、食品和天然产物加工

## 大孔离子交换树脂在重组大肠杆菌生产hEGF中的原位分离作用

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摘要

关键词 [原位分离](#) [重组大肠杆菌](#) [人表皮生长因子](#) [离子交换树脂](#)

分类号

### **IN-SITU SEPARATION BY MACROSPORE-ANIONIC EXCHANGE RESIN DURING RECOMBINANT *E. coli* CULTIVATION FOR hEGF PRODUCTION**

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#### Abstract

Production and accumulation of toxic by-products such as acetic acid can inhibit the growth of recombinant cells and the expression of exogenous gene in *E. coli*. An anionic exchange resin, A-D3-1, which is high in adsorption selectivity and capability for acetic acid, was screened from a variety of resins based on its physical and chemical properties. On the scale of shake flask culture, the addition of 1.0g resin per 30ml medium was insignificant for the cell growth, however, it could improve the hEGF expression significantly. The batch culture in 2.5L fermentor showed that *in-situ* adsorption of acetic acid by anionic exchange resin could enhance the expression level of interested protein and reduce the fermentation period by 2 hours. And up to 10% improvement of hEGF (human epidermal growth factor) volumetric productivity ( $225.0\text{mg}\cdot\text{L}^{-1}$ ) could be achieved by supplementing 3.3g resin per 100ml medium.

**Key words** [in-situ separation](#) [recombinant \*E. coli\*](#) [hEGF](#) [ion-exchange resin](#)

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