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论文

化学与酶促相结合合成人生长激素基因

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摘要:

根据人生长激素(hGH)的氨基酸序列和大肠杆菌密码子的偏好性, 全面优化hGH的密码子, 添加表达调控元件后合成序列的全长为1040 bp, 采用化学方法拆分成30条单链寡核苷酸. 采用改进的两步法拼接成全基因, 得到2个全序列正确的基因. DA-PCR和OE-PCR拼接产物经T7核酸内切酶Ⅰ处理, 合成基因中的碱基错误率降低了93.93%.

关键词: 人生长激素 基因合成 两步法

Synthesis of Human Growth Hormone Gene by the Combination of Chemical and Enzymatic Method

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Abstract:

According to the amino acid sequence and codon preference of *E. coli*, the human growth hormone(hGH) gene was optimized to avoid rare codons. The total length of the synthesized gene was 1040 bp because a promoter and a signal peptide sequence were added into it. Thirty oligonucleotides were designed and synthesized. The whole DNA sequence was synthesized by the improved two-step method. The sequencing result show that two complete correct gene were synthesised. The error rate of synthesized gene treated by T7 endonuclease I reduced 93.93% in comparison with the standard two-step synthesis method.

Keywords: Human growth hormone Gene synthesis Two-step method

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