遗传 1999 21 (5): 458-467 ISSN: 0379-4172 CN: 11-5450/R

中华眼镜蛇短链神经毒素cDNA的克隆及在大肠杆菌中的表达

Cloning and Expression of a Short-chain Neurotoxin from Chinese Cobra in Escherichia coli

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 利用RT-PCR 技术从中华眼镜蛇毒腺组织中成功地克隆了短链神经毒素cDNA。测序结果表明，该基因开放阅读框架编码83个氨基酸残基，其中21个为信号肽，成熟肽为62个氨基酸残基。该基因与GenBank 报道的相同物种的神经毒素基因有相当的同源性，不同物种之间的信号肽序列十分保守。将短链神经毒素cDNA再经PCR扩增除去信号肽序列，克隆到pT7ZZ表达质粒中，转化E. coli BL21(DE3)后，经IPTG诱导可高效表达分子量为23kDa②左右的融合蛋白。表达产物占菌体总蛋白的25%左右。

Abstract:A novel short-chain neurotoxin cDNA was cloned from Chinese cobra venom by RT-PCR. The cDNA was cloned into the pGEM-T vector and sequenced. It has a ORF encoding 83 amino acid residues and a 21 residues signal peptide. This neurotoxin gene of Chinese cobra was highly homogeneous to the short-chain neurotoxin gene of similar species reported in GenBank. Among the genes of neurotoxin from different species, the signal peptides were very conserved. The cDNA encoding the mature peptide was amplified by PCR and was cloned into pT7ZZ vector. The recombinant vector was transformed into E. coliBL2(DE3). The E. coli highly expressed the fusion protein whose mollecular weight is 23kDa, after induced by 0.1 mol/L IPTG. The expressed protein was accumulated up to more than 25% of total bacterial protein.

关键词 神经毒素 RT-PCR 表达 Key words Neurotoxin RT-PCR Expression

分类号

Abstract

Key words

DOI:

通讯作者