

东亚钳蝎中一个中性哺乳动物神经毒素全长cDNA的克隆和分析 Molecular Cloning and Analysis of the cDNA Sequence Encoding a Neutral Mammalian Neurotoxin from the Chinese Scorpion *Buthus martensii* Karsch

朱智慧, 曾宪春, 王三霞, 李文鑫, 朱顺义 ZHU Zhi-hui, ZENG Xian-chun, WANG San-xia, LI Wen-xin, ZHU Sun-yi

武汉大学生命科学院生物技术系武汉大学病毒学研究所, 武汉 430072 Department of Biotechnology, College of Life Sciences, Wuhan University, Wuhan, China, 430072

收稿日期 修回日期 网络版发布日期 接受日期

摘要

构建了东亚钳蝎毒腺cDNA文库, 根据东亚钳蝎中性哺乳动物神经毒素BmKM4的氨基酸序列设计并合成引物, 用PCR方法从文库中筛选到BmKM4全长cDNA序列. 它由5' UTR、可读框和3' UTR组成. 与其他东亚钳蝎哺乳动物神经毒素cDNA的相应区域相比, BmKM4cDNA的5' UTR高度保守, 而其3' UTR则变异较大. AUG的旁侧序列为AAAATGAA, 与绝大多数蝎毒素基因一致. 在BmKM4mRNApoly(A)尾上游17nt处, 有一典型的腺苷化信号(AATAAA). 可读框编码84个氨基酸的毒素前体, 包括N端19个氨基酸残基组成的信号肽, 中间64个氨基酸残基组成的成熟毒素, 以及C末端的额外碱性氨基酸Arg. 根据一般规律, 尾端Arg在毒素前体的成熟过程中会被切除.

Abstract: A full-length cDNA sequence encoding the precursor of a neutral mammalian neurotoxin, BmKM4, was first isolated from a cDNA library made from the venom gland of Chinese scorpion *Buthus martensii* Karsch. A BmKM4-specific primer and a primer corresponding to the partial sequence of pSPORT1 vector were used as forward primer and reverse primer, respectively, to screen the cDNA library by PCR reaction. Sequence analysis of positive clones showed that the BmKM4 cDNA is composed of three parts: 5' UTR, open reading frame and 3' UTR. Compared with the corresponding regions of other scorpion mammalian neurotoxin cDNAs, the 5' UTR of BmKM4 cDNA is highly conservative versus highly variable for 3' UTR. The lateral sequence of initiation codon (AUG) is AAATGAA which is in consistent with that of most scorpion toxin genes. On the 3'-end, a putative polyadenylation signal (AATAAA) was 17nt upstream of Poly (A) tail. The open reading frame encodes a precursor of 84 amino acid residues, including a signal peptide of 19 residues, a mature toxin (BmKM4) of 64 residues, and a basic residue (Arg) tail which would be removed in the processing step.

关键词 [东亚钳蝎](#) [中性哺乳动物神经毒素](#) [BmKM4](#) [cDNA](#) Key words [Buthus martensii Karsch](#) [neutral mammalian neurotoxin](#) [BmKM4](#) [cDNA](#)

分类号

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(0KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“东亚钳蝎”的相关文章](#)
- ▶ [本文作者相关文章](#)

- [朱智慧](#)
- [曾宪春](#)
- [王三霞](#)
- [李文鑫](#)
- [朱顺义ZHU Zhi-hui](#)
- [ZENG Xian-chun](#)
- [WANG San-xia](#)
- [LI Wen-xin](#)
- [ZHU Sun-yi](#)

Abstract

Key words

DOI:

通讯作者