

简报

## 日本血吸虫副肌球蛋白全基因克隆、测序及体内表达

周生华,刘述先,宋光承,徐裕信

中国预防医学科学院寄生虫病研究所免疫学研究室 上海 200025

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摘要

目的: 将日本血吸虫大陆株副肌球蛋白(Sjc97) 编码区全基因克隆及测序, 并研究 Sjc97 全基因核酸疫苗在小鼠体内的表达。方法: 抽提日本血吸虫成虫总 RNA, 逆转录 聚合酶链反应(RT-PCR) 扩增编码 Sjc97 的全基因 cDNA, 双脱氧链末端终止法测 D N A 序列。构建含 Sjc97 全基因的质粒表达载体(pCMV Sjc97), 并用免疫荧光染色法研究 pCMV Sjc97 在小鼠体内的表达特性。结果与结论: 用 RT-PCR 扩增获得了 Sjc97 的编码区全基因 cDNA, 并测定了该基因编码区的全序列。与日本血吸虫菲律宾株、日本株及曼氏血吸虫副肌球蛋白编码区全基因比较, 核苷酸序列同源性分别为: 99.4%、99.2% 和 91.0%; 推导的氨基酸序列同源性分别为: 99.7%、99.8% 和 96.0%。pCMV Sjc97 核酸疫苗能在注射的小鼠局部肌肉组织表达 Sjc97。

关键词 [日本血吸虫](#) [副肌球蛋白](#) [基因克隆](#) [DNA序列](#) [核酸疫苗](#)

分类号

## CLONING, SEQUENCING AND EXPRESSION OF THE FULL-LENGTH GENE ENCODING PARAMYOSIN OF SCHISTOSOMA JAPONICUM IN VIVO \*

ZHOU Shenghua, LIU Shuxian, SONG Guangcheng, XU Yuxin

Institute of Parasitic Diseases; Chinese Academy of Preventive Medicine \*\*; Shanghai 200025

Abstract

AIM: To clone and sequence the gene encoding paramyosin of *S. japonicum* (Chinese strain) and to study the expression of the DNA-based vaccine encoding the full-length paramyosin of *S. japonicum* in vivo. METHODS: Total RNA was isolated from adult *S. japonicum* using TRIzol reagent. The full-length cDNA encoding paramyosin of *S. japonicum* was amplified by RT-PCR and cloned into pGEM-T vector and sequenced by the method of dideoxy-mediated chain-termination. The cDNA encoding paramyosin of *S. japonicum* was subcloned into the expressive plasmid vector pCDNA/AMP(pCMV-Sjc97), and the recombinants were identified by restriction enzyme digestion and sequencing. The immunofluorescence assay was used to study the expression of Sjc97 in vivo in mice. RESULTS AND CONCLUSION: The 2.6 kb cDNA encoding the full-length paramyosin of Chinese *S. japonicum* has been successfully cloned and sequenced for the first time. The full-length sequence of paramyosin of *S. japonicum* was determined. Comparison of the nucleotide sequence and the deduced amino acid sequence of Sjc97 with that of *S. japonicum* paramyosin (Philippine strain) (Sjp97), *S. japonicum* paramyosin (Japanese strain) (Sjj97), *S. mansoni* (Sm97), B6 and Y6 clone (the partial cDNA encoding paramyosin of Chinese strain) showed that Sjc97 differed from Sjp97 by 16/2 601 nucleotide and 3/866 amino acid substitutions (99.4% on nt-level and 99.7% on aa-level in homology); from Sjj97 by 20/2 601 nucleotide and 2/866 amino acid substitutions (99.2% on nt-level and 99.8% on aa-level in homology); and from B6 by 11/1 329 nucleotide and 1/443 amino acid substitutions (99.0% on nt-level and 99.8% on aa-level in homology); from Y6 by 13/1 329 nucleotide and 1/443 amino acid substitutions (98.9% on nt-level and 99.8% on aa-level in homology); Sjc97 differed from the Sm97 by 2 235/2 601 nucleotide and 34/866 amino acid (91.0% on nt-level and 96.0% on aa-level in homology). The plasmid expression vector encoding the full-length paramyosin of Chinese *S. japonicum* has been successfully constructed. The pCMV-Sjc97 vaccine could express Sjc97 protein in vivo in mice after intramuscular immunization.

Key words [Schistosoma japonicum \(Chinese strain\)](#) [paramyosin](#) [gene cloning](#) [DNA sequence](#) [DNA-based vaccine](#)

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通讯作者

作者个人主  
页

周生华; 刘述先; 宋光承; 徐裕信