

论著

## 日本血吸虫童虫表膜结合多肽的亲筛选与初步鉴定

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摘要

【摘要】目的 筛选噬菌体十二肽库中与日本血吸虫 (Schistosoma japonicum) 童虫表膜特异性结合的多肽并鉴定。方法 利用噬菌体十二肽库与日本血吸虫活童虫靶分子之间的亲和力结合, 经3轮吸附-洗脱-扩增, 从未次回收的结合噬菌体中随机挑取20个克隆进行测序。根据测序结果, 选取出现次数最多的噬菌体克隆作为目标噬菌体, 免疫组化检测目的噬菌体, 并回输到已感染日本血吸虫的小鼠体内, 2.5 h后处死小鼠, 回收肝脏和日本血吸虫童虫, 分别洗脱与肝脏和童虫结合的噬菌体, 进行统计学分析。结果 经3轮筛选后, 噬菌体回收率从第1轮的 $0.77 \times 10^{-8}$ 到第3轮的 $0.75 \times 10^{-5}$ , 说明噬菌体得到了有效富集。DNA测序结果表明, 20个噬菌体克隆中的15个克隆呈现QHPRIKOOOOO序列。免疫组化结果显示, 表达该序列的噬菌体能与童虫表膜有效结合; 体内回输试验证实, 该噬菌体能有效地靶向结合于体内日本血吸虫童虫表膜。结论 筛选获得的短肽QHPRIKOOOOO能有效地靶向结合日本血吸虫童虫表膜。

关键词 [日本血吸虫](#); [童虫](#); [噬菌体展示技术](#); [表膜](#); [靶向性](#)

分类号

## Screening and Characterization of Peptides Specifically Binding to the Schistosomulum Tegument of Schistosoma japonicum

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Abstract

【Abstract】Objective To screen and analyze the peptides in 12 phage-display peptide library specifically binding to the schistosomulum tegument of Schistosoma japonicum. Methods A 12 phage-display peptide library was screened with the S. japonicum schistosomula as the target cells for biopanning by degrees, positive clones picked randomly were deduced by DNA sequencing. According the sequencing result, immunohistochemical staining was performed to determine the specificity of the phages to the tegument. To test their targeting efficacy, the interested phage clones were infused back to the mice infected with S. japonicum, mice were sacrificed 2.5 hours later, and the phage distribution in the liver and the tegument of schistosomula was appraised, respectively. Results After 3 rounds of biopanning, the phage recovery rate increased from  $0.77 \times 10^{-8}$  to  $0.75 \times 10^{-5}$ , indicating that the phage library was successfully enriched in the tegument of schistosomula. Seventy-five percent (15/20) of the analyzed sequences were identical with a sequence of QHPRIKOOOOO. The immunohistochemical stainings showed this sequence specifically binding to the tegument. In vivo titering displayed that this sequence selectively targeted the tegument. Conclusion The peptide of QHPRIKOOOOO specifically binds to the schistosomulum tegument.

Key words [Schistosoma japonicum](#); [Schistosomulum](#); [Phage display](#); [Tegument](#); [Target](#)

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