

论著

重组白细胞介素-4增强日本血吸虫组织蛋白酶B核酸疫苗诱导小鼠的保护力

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摘要

目的?探讨重组白细胞介素-4 (IL-4) 真核表达质粒增强日本血吸虫组织蛋白酶B DNA疫苗对小鼠的免疫保护效果。方法 将小鼠IL-4 基因克隆至真核表达载体pcDNA3.1以构建小鼠重组IL-4表达质粒, 并联合日本血吸虫组织蛋白酶B的表达质粒DNA (VR1012-Sj31)肌注免疫小鼠, 设重组IL-4表达质粒、组织蛋白酶B表达质粒和2种空载体质粒对照组。免疫组化检测IL-4和组织蛋白酶B在小鼠肌细胞内的表达, 末次免疫3周后攻击感染, 用减虫率及减卵率表示保护力。结果 重组IL-4和组织蛋白酶B DNA均在小鼠肌细胞表达, 重组IL-4和组织蛋白酶B DNA联合免疫小鼠, 产生43.2% 的减虫率和76.6% 的减卵率, 与组织蛋白酶B DNA单独免疫相比差异有显著性 ($P<0.01$, $P<0.05$)。结论 重组IL-4 能提高日本血吸虫组织蛋白酶B 核酸疫苗的抗血吸虫保护力作用, 具有佐剂的免疫效应。

关键词 [日本血吸虫](#) [核酸疫苗](#) [组织蛋白酶类](#) [重组白细胞介素-4](#) [免疫保护](#)

分类号

Boost Effect of Recombinant IL-4 on Protection of *Schistosoma japonicum* Cathepsin B DNA Vaccine in Mice Against the Parasite

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Abstract

Objective To investigate the enhancement effect of IL-4 expression plasmid on cathepsin B DNA vaccine of *Schistosoma japonicum* (Sj) in mice. Methods The recombinant IL-4 plasmid constructed by cloning PCR amplified product of murine IL-4 gene into eukaryotic expression vector pcDNA3.1 was co-injected intramuscularly with Sj cathepsin B expression plasmid DNA to mice as the test group. The other three groups of mice were set up as control including IL-4 expression plasmid, Sj cathepsin B expression plasmid and two vacant vector plasmids. The expression of IL-4 and cathepsin B was visualized by immunohistochemistry. Challenge infection in mice was carried out 3 weeks after the last vaccination and immune protection was assessed by worm and egg reduction rates. Results The recombinant mIL-4 plasmid and cathepsin B DNA vaccine were expressed in muscular cells of the vaccinated mice. Immunization with cathepsin B DNA plus recombinant mIL-4 plasmid yielded a 43.2 % of worm reduction rate and a 76.6% of egg reduction rate, showing a significant difference ($P<0.01$, $P<0.05$) compared with that of cathepsin B DNA vaccine alone. Conclusion As an adjuvant, IL-4 DNA can improve the protective effect of cathepsin B DNA vaccine in mice against *S. japonicum* infection.

Key words [Schistosoma japonicum](#) [DNA vaccine](#) [Cathepsins](#) [Recombinant IL-4](#) [Immunoprotection](#)

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