

论著

日本血吸虫中国大陆株23 kDa膜蛋白DNA疫苗诱导小鼠保护性免疫的研究

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摘要

目的 研究日本血吸虫中国大陆株 23 kDa膜蛋白 (SjC23)DNA疫苗诱导C57BL/6小鼠免疫保护作用。方法 将全长的SjC23基因克隆到真核表达载体pcDNA3.1,构建DNA疫苗 pcDNA3.1 SjC23。制备SjC23及IL 12的两个亚单位 p35、p40的DNA疫苗和对照 pcDNA3.1。48只C57BL/6小鼠随机分为A、B、C 3组。A组小鼠肌注 100 μg pcDNA3.1;B组注射 100 μg pcDNA3.1 SjC23;C组肌注 pcDNA3.1 SjC23、pcDNA3.1 p35及pcDNA3.1 p40各 100 μg的混合物。每隔 2周各免疫 1次,共 3次。第 8周每鼠感染 45±2条/只尾蚴,45d后剖杀,计数成虫及肝内虫卵。采用免疫组化法检测SjC23及 p35、p40在小鼠局部组织内的表达;用脾细胞培养法检测经rSjC23 HD刺激后,攻击前、后小鼠脾细胞IL 2、IL 4、IL 10和IFN γ的水平。用Western blotting检测血清中抗SjC23抗体。结果 SjC23以及p35、p40在免疫小鼠股四头肌细胞膜和细胞浆均获得表达。IL 2和IFN γ的水平攻击前、后在B组和C组均明显升高。Western blotting检测抗SjC23抗体结果表明,免疫后两周,B组 8/10份血清为阳性,C组 9/10份血清阳性。B组和C组分别获得 26.9%和 35.4%的减虫率,C组显著高于B组 (P<0.05);减卵率分别为 22.2%和 28.4%。结论 SjC

关键词 [日本血吸虫](#) [23kDa膜蛋白](#) [DNA疫苗](#) [保护性免疫](#)

分类号

Protective Immunity Induced by 23 kDa Membrane Protein DNA Vaccine of *Schistosoma japonicum* Chinese Strain in Mice

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Abstract

Objective To develop 23 kDa membrane protein DNA vaccine of *Schistosoma japonicum* Chinese strain and test its protective efficacy in infected C57BL/6 mice. Methods The full length cDNA encoding SjC23 amplified from pUC19 SjC23 subcloned into pcDNA3.1. 48 female mice were divided into three groups: A, B and C. Group A (control group) was each immunized im with 100 μg of pcDNA3.1; group B (SjC23 group) was each immunized im with 100 μg of pcDNA3.1 SjC23; group C (SjC23+IL 12) was each immunized im with a mixture of 100 μg of pcDNA3.1 SjC23, 100 μg of pcDNA3.1 p35 and 100 μg of pcDNA p40, followed by two boosts of the same DNA once every two weeks. All the mice were challenged with 45 cercariae at week 8, killed and perfused for worms at week 14. The expression of SjC23 and p35, p40 in muscle tissue was determined by immuno histochemical method. By the culture of spleen cells, the production of IL 2,IL 4,IL 10 and IFN γ after the stimulation of rSjC23 HD was determined two weeks before and after challenge. Anti SjC23 antibodies were tested by Western blotting. Results SjC23 and p35, p40 were all expressed on the membrane and in the plasma of muscle cells of the infected mice. Significant increase of IL 2 and IFN γ in SjC23 and SjC23+IL 12 groups was observed before and after challenge. Western blotting showed that after the third immunization (before challenge) 8 out of 10 sera from SjC23 group and 9 out of 10 sera from SjC23+IL 12 group were positive. The worm reduction rate in SjC23 group and SjC23 +IL 12 group was 26.9% and 35.4%, respectively; the number of eggs in liver tissue was reduced by 22.2% and 28.4%, respectively. Conclusion pcDNA3.1 SjC23 DNA vaccine could induce partial protection against *Schistosoma japonicum* in C57BL/6 mice.

Key words [Schistosoma japonicum](#) [23 kDa membrane protein](#) [DNA vaccine](#) [protective immunity](#)

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