

实验研究

多头绦虫膜蛋白 (45M) 对羊脑多头蚴病的免疫保护效果

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摘要

目的 观察多头绦虫膜蛋白 (45M) 对羊脑多头蚴病的免疫保护效果。方法 12只新疆哈萨克羊随机均分为免疫组和对照组, 免疫组用重组多头绦虫膜蛋白 (45M) 与佐剂乳化后颈部皮下2点免疫, 抗原免疫剂量为50 μg/只, 注射体积为1 ml, 共免疫4次, 每次间隔3周。对照组以谷胱甘肽硫转移酶 (GST) 表达物代替免疫抗原同法免疫。定时采集羊血, 分离血清。ELISA法检测血清中IgG和IgM的抗体水平。于末次免疫后105 d, 免疫组和对照组每羊经口攻击感染5 000个多头绦虫虫卵, 感染2周后剖检羊脑多头蚴囊数, 计算减囊率。将经孵化激活的六钩蚴分别置于含10%两组免疫攻击感染羊血清的RPMI 1640培养液中培养, 观察两组羊血清对多头绦虫六钩蚴的杀伤情况。结果 免疫组有3只羊感染多头蚴包囊, 平均囊荷数为1.5个, 囊平均直径为2.2 mm, 免疫组减囊率为68.9%。六钩蚴与免疫组羊血清共培养72 h后, 90%死亡, 被杀伤的六钩蚴出现萎缩, 或膨胀致使内部结构模糊。ELISA检测结果显示, 在第4次免疫后 (第9周), 免疫组IgG抗体水平达到最高 (2.32±0.76), 与对照组 (0.70±0.42) 间的差异有统计学意义 ($t=4.47, P<0.01$)。经口感染六钩蚴后 (第24周), 免疫组IgG和IgM抗体水平 (1.53±0.81, 0.90±0.26) 仍显著高于对照组 (0.64±0.43, 0.43±0.15) ($P<0.01$)。结论 重组蛋白45M可引起机体较强的体液免疫反应。

关键词 [多头绦虫](#) [ELISA](#) [免疫保护](#) [重组膜蛋白](#)

分类号

Immune Protection of Recombinant Membrane Protein against *Taenia multiceps* Larvae in SheepZHANG Zhuang-zhi^{1*}, SHI Bao-xin¹, YOU Hong¹, ZHAO Li¹, TUERHONG Yimiti¹, WANG Jin-cheng¹, ZHANG Wen-bao¹, CUI De-sheng², Aierken², GUO Jin-liang³

Abstract

Objective To investigate the immune protection of the recombinant membrane protein (45M) against larvae of *Taenia multiceps* in sheep. **Methods** Twelve sheep were randomly divided into immune group and control group, and each sheep was immunized four times (three weeks interval) respectively with 50 μg recombinant 45M or GST emulsified with adjuvant. Serum samples were collected at pre-immunization and certain time after immunization, and were analyzed for IgG and IgM by ELISA. At the 105th day after the final inoculation, each sheep was orally challenged by 5 000 eggs of *T. multiceps*. Two weeks after infection, the sheep were sacrificed, serum samples were collected, and number of cysts in brain tissue was counted. Activated oncospheres were cultured with 10% sera of immune group or control group, and observed by light microscopy. **Results** The mean number of cysts was 1.5, and the average diameter of the cysts was 2.2 mm. Compared with control group, the reduction rate of cysts in immunized sheep was 68.9%. At the 72th hour after culture with serum of immunized sheep, about 90% oncospheres were killed by antiserum, and the oncospheres began to shrink or expand, and internal structure became fuzzy. ELISA showed that after final immunization (the 9th week), the levels of IgG in sera of immune group (2.32±0.76) were significantly higher than those of the control (0.70±0.42) ($t=4.47, P<0.01$). At the 24th week the levels of IgG and IgM in sera of immune group (1.53±0.81, 0.90±0.26) were significantly higher than those of the control (0.64±0.43, 0.43±0.15) ($P<0.01$).

Conclusion The recombinant 45M can induce certain humoral immune response.Key words [Taenia multiceps](#) [ELISA](#) [Immune protection](#) [Recombinant membrane protein](#)

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