

实验研究

弓形虫GRA4和SAG2基因重组BCG疫苗免疫保护性的比较研究

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摘要

【摘要】 目的 比较弓形虫致密颗粒蛋白4 (GRA4) 基因和表面抗原2 (SAG2) 基因的重组卡介苗 (BCG) 对小鼠的免疫保护效果。方法 108只SPF级雌性BALB/c小鼠随机分成6组: PBS组、BCG空白菌组、BCG? 鄞空白载体组、BCG? 鄞SAG2组、BCG-GRA4组和BCG-SAG2+GRA4组, 每组18只。小鼠分别注射对应液体/疫苗100 μ l, 共2次, 间隔2周。接种前尾静脉采血, 接种后4、6、8周每组分别剖杀3只, 取脾和眼眶血检测细胞因子、IgG与IgM抗体, T淋巴细胞亚群计数, 淋巴细胞转化率等。末次免疫后3周, 每组剩余小鼠分别腹腔接种RH株弓形虫速殖子50个进行攻击感染, 观察各组小鼠存活时间。结果 弓形虫SAG2和GRA4重组BCG疫苗均能诱导小鼠产生免疫应答。第4周时, BCG-GRA4+SAG2免疫组小鼠的CD3⁺CD4⁺/CD3⁺CD8⁺ 的比值最高, 为14.06% \pm 1.17%。第6周时, BCG-GRA4+SAG2免疫组小鼠的IgG抗体水平最高, 为0.18 \pm 0.02。第8周时, BCG-SAG2免疫组小鼠的IgM抗体水平最高, 为0.82 \pm 0.05; 弓形虫速殖子攻击后, BCG-SAG2组平均存活8.61 d, PBS对照组平均存活7.33 d, 3个免疫组小鼠比其他3组的平均存活时间长1 d。结论 弓形虫重组BCG疫苗具有一定的免疫保护性。

关键词 [弓形虫](#) [致密颗粒蛋白4 \(GRA4\)](#) [表面抗原2 \(SAG2\)](#) [重组疫苗](#) [卡介苗 \(BCG\)](#) [免疫效果](#)

分类号

Study on Immuno-effect with GRA4 or SAG2 Gene Recombinant BCG Vaccine of *Toxoplasma gondii*

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Abstract

【Abstract】 Objective To compare the immuno-protection induced by the recombinant BCG vaccine of *Toxoplasma gondii* GRA4 gene (rBCG-GRA4) and SAG2 gene (rBCG-SAG2) in BALB/c mice. Methods 108 SPF BALB/c mice were divided into 6 groups: PBS, BCG, rBCG, rBCG-GRA4, rBCG-SAG2 and rBCG-GRA4+SAG2, each with 18 mice. Each mouse was injected by 100 μ l corresponding materials for 2 times. Blood was taken from tail vein before inoculation. 4, 6 and 8 weeks after inoculation, spleen was moved and blood was taken from orbit vein of 3 mice from each group for the detection of cytokines, IgG and IgM antibodies, T lymphocyte subgroups and transformation efficiency. 3 weeks after the last inoculation, 9 mice from each group were challenged intraperitoneally with 50 tachyzoites of *T.gondii* RH strain and their survival time was observed. Results rBCG vaccine of *T.gondii* induced immune response. The value of CD3⁺CD4⁺/CD3⁺CD8⁺ of group BCG-GRA4+SAG2 was the highest (14.06 \pm 1.17) in the 4th week; the IgG titer in the BCG-GRA4+SAG2 group was the highest (0.18 \pm 0.02) in the 6th week and the IgM titer in the BCG-SAG2 group was the highest (0.82 \pm 0.05) in the 8th week. The average survival time of the mice in BCG-SAG2 group was about 8.61 days after challenged with tachyzoites, and that of the PBS control group, 7.33 days. The average survival time in the 3 immunized groups was one day longer than that of the control. Conclusion The rBCG vaccine of *T.gondii* shows certain immuno-protection in mice.

Key words [Toxoplasma gondii](#) [Dense granule protein 4 \(GRA4\)](#) [Surface antigen 2 \(SAG2\)](#) [Recombinant vaccine](#) [Bacillie Calmette-Guérin; Immuno-protection](#)

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