

论著

负载GST抗原的树突状细胞疫苗联合CpG ODN抗日本血吸虫感染的保护性研究

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摘要

【摘要】 目的 研究负载GST抗原的树突状细胞(DC)疫苗联合非甲基化胞嘧啶鸟嘌呤二核苷酸寡脱氧核苷酸(CpG ODN)免疫小鼠抗日本血吸虫感染的作用。方法 将GST抗原纯化后负载树突状细胞株DC2.4, 免疫荧光染色法检测GST的负载情况, 并进行动物保护性实验。35只C57BL/6小鼠随机均分7组(每组5只), 分别作免疫注射: A组为未处理的DC, B组为牛血清白蛋白(BSA)处理的DC, C组为GST负载的DC, D组为GST+CpG ODN共刺激的DC, E组为CpG ODN刺激的DC, F组为GST蛋白, G组为空白对照组。A~E各组DC经0.25%胰蛋白酶消化后用PBS调整密度至107/ml, 每鼠皮下注射0.1 ml, 每次间隔2周, 共免疫3次。F组首次每鼠免疫50 μg GST蛋白加福氏完全佐剂, 第2、3次分别免疫50 μg、10 μg GST蛋白加福氏不完全佐剂, 均为皮下注射。各组于末次免疫后10 d收集血清, ELISA方法分析血清中的特异性抗体。各组小鼠于末次免疫后2周每鼠经腹部感染尾蚴30±1条。6周后剖杀小鼠, 计算减虫率。结果 DC经GST负载后可在荧光显微镜下观察到抗GST的特异荧光, 表明抗原已被DC摄取。各组小鼠免疫后, F组抗体水平最高, 为2.127 0±0.411 5, 另外C组(0.555 2±0.078 9)和D组(0.715 0±0.052 3)的抗体水平均高于G组(0.235 8±0.088 9), 差异有统计学意义(P<0.05)。免疫后攻击感染, D组小鼠的减虫率最高为53.3%, 其次为F组(24.0%)和C组(21.3%), 但D组与两组比较差异无统计学意义(P>0.05)。结论 CpG ODN联合GST抗原负载的树突状细胞疫苗具有一定的抗日本血吸虫感染作用。

关键词 [日本血吸虫](#); [GST](#); [树突状细胞](#); [CpG ODN](#)

分类号

Protective Efficacy Induced by Dendritic Cells Pulsed with GST in Combination with CpG Oligodeoxynucleotide against chistosoma japonicum Infection

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Abstract

【Abstract】 Objective To study the protective effects on the infection of Schistosoma japonicum in C57BL/6 mice induced by dendritic cells DCs pulsed with GST in combination with CpG oligodeoxynucleotide. Methods GST was purified and used to stimulate DC2.4 cell line. Antigen loading was analyzed by immunofluorescence method. Thirty-five C57BL/6 mice were divided into seven groups (5 mice per group). Mice in groups A, B, C, D and E were immunized subcutaneously with DCs, DCs treated with PSA, DCs pulsed with GST, DCs stimulated with GST+CpG ODN, DCs stimulated with CpG ODN, respectively. For the above five groups, each mouse received 100 μl cell suspension at the density of 107/ml subcutaneously for three times at 2-week intervals. Each mouse of group F was immunized subcutaneously with 50 μg GST formulated in complete Freund's adjuvant first, and 50 μg, 10 μg GST respectively in incomplete Freund's adjuvant for the last two doses. Group G received PBS and served as control. Serum samples were collected 10 days after the final immunization, and were analyzed for specific antibodies by ELISA. At two weeks after the final immunization, each mouse were challenged by 30±1 cercariae of S. japonicum. Six weeks after infection the mice were sacrificed, and number of worms was counted. Results Light green fluorescence was observed in dendritic cells under the fluoroscope after pulsing with GST which indicated the protein loaded dendritic cells. The IgG level in

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groups C, D and F was 0.5552 ± 0.0789 , 0.7150 ± 0.0523 , and 2.1270 ± 0.4115 , respectively, all higher than that of group G ($P < 0.05$). The worm reduction rate of group D was 53.3%, followed by group F (24.0%) and group C (21.3%). There was no significant difference in the worm reduction rate between group D and groups F and C ($P > 0.05$). Conclusion Dendritic cells pulsed with GST in combination with CpG oligodeoxynucleotide induce significant immunoprotection against the infection of *Schistosoma japonicum*.

Key words [Schistosoma japonicum](#); [GST](#); [Dendritic cell](#); [CpG ODN](#)

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