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日本血吸虫表位肽?鄣DNA颗粒性疫苗对小鼠免疫应答的影响

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Effect of Epitope-based Peptide-DNA Dual Vaccines against *Schistosoma japonicum* in Mice

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摘要 采用已构建的日本血吸虫Sj22.6抗原CTL、Th和B细胞表位肽-DNA颗粒性疫苗(PDDV)及其混合疫苗免疫C57BL/6小鼠。36只小鼠随机均分6组,即18K对照组〔K〕18-空质粒PDDV)、PBS对照组、C组(C-PDDV)、T组(T-PDDV)、B组(B-PDDV)和C-T-B组(C-PDDV、T-PDDV和B-PDDV等量混合),每鼠分别在第0、3和6周麻醉后经尾脊部皮下注射100 μl PDDV(含10 μg DNA和28 μg肽),对照组注射等量的空质粒DNA和〔K〕18肽或PBS。末次免疫后7 d,脱颈处死,制备脾细胞悬液,经日本血吸虫成虫抗原(SWA)刺激后根据3H标记的胸腺嘧啶核苷(3H-TdR)检测脾细胞增殖反应,ELISA法检测脾细胞培养上清中r干扰素(IFN-r)和白细胞介素-4(IL-4)的含量。ELISA结果显示,T组小鼠脾细胞中IFN-r的含量〔(76.0±11.2) pg/ml〕,高于PBS〔(13.0±2.1) pg/ml〕和18K对照组〔(14.0±3.2) pg/ml〕(P<0.01),T组和C-T-B组小鼠脾细胞中IL-4的水平分别为(152.0±21.1)和(86.0±12.2) pg/ml,高于其他组(P<0.01或P<0.05)。T组小鼠脾细胞经SWA刺激后,增殖反应明显高于PBS和18K对照组(P<0.01);而C?鄣T?鄣B组小鼠脾细胞的增殖反应与PBS和18K对照组相比,差异无统计学意义(P>0.05)。说明T-PDDV和C-T-B混合PDDV诱导的免疫应答强于单价的C-PDDV和B-PDDV。

关键词: 日本血吸虫 颗粒性肽?鄣DNA混合疫苗 小鼠 免疫应答

Abstract: A C-T-B PDDV mixture of the three constructed epitope-based peptide-DNA dual vaccines (PDDV) containing the CTL (C), Th (T) and B-cell (B) epitopes from Sj22.6 tegument (C-PDDV, T-PDDV and B-PDDV) with a 1 : 1 : 1 ratio was prepared. Thirty-six mice were randomly divided into six groups averagely named as 18K group, PBS group, C-PDDV group, T-PDDV group, B-PDDV group, and C-T-B PDDV group. All the mice received three immunizations at 2-week intervals with the same dose of antigen (10 μg DNA+28 μg peptide). One week after the last immunization, the mice were sacrificed, the spleens were removed and splenocytes were collected. Splenocyte proliferation was assayed by [3H] TdR incorporation after stimulation with soluble worm antigen (SWA). Levels of IFN-r and IL-4 in the splenocyte culture supernatants were determined by ELISA. The results showed that IFN-r content in T-PDDV group [(76.0±11.2) pg/ml] was higher than that of PBS [(13.0±2.1) pg/ml] and 18K control groups [(14.0±3.2) pg/ml] (P<0.01). IL-4 level in T-PDDV [(152.0±21.1) pg/ml] and C-T-B mixture groups [(86.0±12.2) pg/ml] was higher than others (P<0.01 and P<0.05). The splenocytes from T-PDDV group showed a significant increase in proliferation compared with PBS and 18K control groups after stimulation by SWA (P<0.01). However, there was no significant difference in splenocyte proliferation among C-T-B, PBS and 18K control groups (P>0.05). These findings indicate that T-PDDV and C-T-B PDDV mixture induces stronger immune response than that of C-PDDV or B-PDDV.

Keywords: *Schistosoma japonicum* Peptide-DNA dual vaccine Mouse Immune response

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