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结核分枝杆菌ESAT6、CFP10基因DNA疫苗对小鼠免疫原性的初步研究

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Preliminary study of Mycobacterium tuberculosis ESAT6 and CFP10 DNA vaccine immunogenicity in mice

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摘要 参考文献 相关文章

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摘要 目的 研究ESAT6、CFP10基因DNA疫苗分别与卡介苗联合免疫小鼠, 以诱导免疫效果。方法 以构建的真核表达载体pEGFP-N1-ESAT6、pEGFP-N1-CFP10与卡介苗共同免疫随机分成8组的80只小鼠, 分别标记为:生理盐水组(SLYS)、卡介苗组(KJM)、pEGFP-N1组(P-N1)、pEGFP-N1-ESAT6组(P-N1-E)、pEGFP-N1-CFP10组(P- N1-C)、卡介苗加pEGFP-N1组(K+P-N1)、卡介苗加pEGFP-N1-ESAT6组(K+P-N1-E)和卡介苗加pEGFP-N1-CFP10组(K+P-N1-C)。每只小鼠皮内注射100μL卡介苗, 每只小鼠肌肉注射50μg质粒, 每组共注射3次。以纯化的ESAT6、CFP10蛋白作为抗原, 用DOT-ELISA方法检测小鼠血清中的抗体;用ELISA方法检测小鼠血清中IFN-γ的变化。结果 免疫3次后的小鼠血清中检测到针对CFP10蛋白的抗体, 未检测到针对ESAT6蛋白的抗体。但二者血清中IFN-γ水平都有显著上升, K+P-N1-C和K+P-N1-E免疫3次后, 测得的IFN-γ平均含量为(107.591±7.3281)pg/mL和(95.7503±9.0184)pg/mL, 显著高于免前、一免、二免(P<0.01)。结论 结核分枝杆菌ESAT6, CFP10基因DNA疫苗和卡介苗联合应用后可诱导小鼠产生有效的细胞免疫应答, 为DNA疫苗的研究奠定一定的基

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关键词： 结核分枝杆菌 ESAT6 CFP10 DNA疫苗 卡介苗

Abstract： The objective of the present study was to investigate immune effect by using ESAT6, CFP10 DNA vaccine combined with BCG to immunize mice. DNA vaccine pEGFP-N1-ESAT6 and pEGFP-N1-CFP10 was primarily constructed, and 80 mice were randomly divided into eight groups including saline group (SLYS), BCG group (KJM), pEGFP-N1 group (P-N1), pEGFP-N1-ESAT6 group (P-N1-E), pEGFP-N1-CFP10 group (P-N1-C), BCG plus pEGFP-N1 group (K+P-N1), BCG plus pEGFP-N1-ESAT6 group (K+P-N1-E), and BCG plus pEGFP-N1-CFP10 group (K+P-N1-C). Each mouse was intradermally injected with 100 μL BCG, while each mouse was intramuscularly injected with plasmid pEGFP-N1-ESAT6, pEGFP-N1-CFP10 (50 μg). Each group was injected for three times. Purified ESAT6, CFP10 proteins were used as antigen. DOT-ELISA method was used to detect antibodies in the serum of mice. ELISA method was used to detect the change of the IFN-γ in the serum of mice. Antibodies against CFP10 proteins were detected in mouse serum after three immunizations. Antibody against ESAT6 proteins was not detected. However, IFN-γ levels in serum increased significantly. The average content of the measured IFN-γ was significantly higher than that before immunization; the first immunization and the second immunization ($P<0.01$) was (107.591±7.3281) pg/mL and (95.7503±9.0184) pg/mL after three times immunization with K+P-N1-C and K+P-N1-E. It concluded that Mycobacterium tuberculosis ESAT6 and CFP10 DNA vaccine combined with BCG combination could induce an effective cellular immune response, which lay a foundation for the study of DNA vaccines.

Keywords： Mycobacterium tuberculosis ESAT6 CFP10 DNA vaccine BCG

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