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论著

恶性疟原虫富组氨酸蛋白2重组蛋白与真核表达质粒免疫特性的比较

李珣,缪军,薛采芳,甄荣芬,刘忠湘,王宪锋,穆士杰

第四军医大学病原生物学教研室!西安710032(李珣;缪军;薛采芳;甄荣芬;刘忠湘;王宪锋);第四军医大学西(穆士杰)

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摘要

目的 探讨以恶性疟原虫富组氨酸蛋白 2 (PfHRP2)为基础的不同形式的侯选疫苗诱导小鼠免疫应答的特性 ,为包含HRP2的恶性疟红内期疫苗的研制提供实验依据。方法 用重组蛋白TP HRP2及真核表达质粒pcDNA3 1(-) HRP2免疫BALB c小鼠 ,对抗体应答的动力学及特异性进行分析 ,取脾细胞进行体外增殖实验 ,用免疫血清进行P f.体外生长抑制实验。结果 重组蛋白TP HRP2加福氏佐剂诱导BALB c小鼠产生了高水平的抗体 ,其抗体产生快、持续时间久 ,并具较高的特异性 ,细胞应答被同期激活 ,免疫血清可明显抑制红细胞内发育期疟原虫。重组真核表达质粒pcDNA3 1(-) HRP2诱导BALB c小鼠产生了较高水平和具有一定特异性的抗体 ,其抗体的产生需要多次免疫和较长时间 ,初始化的脾细胞对抗原再刺激的回忆应答显著 ,但免疫血清对疟原虫的体外生长没有抑制作用。结论 HRP2重组蛋白与真核表达质粒在小鼠具有较为不同的免疫特性 ,HRP2重组蛋白疫苗具有潜在的应用前景

关键词 恶性疟原虫 富组氨酸蛋白2 疫苗 免疫应答

分类号

Comparison of Immune Responses Elicited by Recombinant Protein and Eukaryotic Expression Plasmid Based on Histidine Rich Protein 2 of Plasmodium falciparum *

LI Xun 1,MIAO Jun 1,XUE Cai fang 1,ZHEN Rong fen 1,LIU Zhong xiang 1,WANG Xian feng 1,MU Shi jie 2

1 Department of Etiology;Fourth Military Medical University;Xi'an 710032; 2 Department of Blood transfusion;Xijing Hospita

Abstract

Objective To identify the immune characteristics of different vaccine prototypes based on HRP2 and to provide experimental evidence for developing P f. blood stage vaccines.Methods BALB/c mice were immunized with recombinant protein TP HRP2 or eukaryotic expression plasmid pcDNA3 1(-)/HRP2. The kinetics and specificities of antibody responses were analyzed. The proliferation tests of spleen cells were done, and P f. growth inhibition assays were done with immune sera.Results The mice immunized with TP HRP2 in Freund’s adjuvant produced high level and high specificity antibody response. The antibodies appeared rapidly and lasted for a longer time. Cellular responses were induced simultaneously, and the immune sera could inhibit the development of parasite in IRBCs. The mice immunized with pcDNA3 1(-)/HRP2 produced middle level antibody response which had some specificity,however,the induction of antibodies required repeated inoculation and a longer duration. Immune cells were well primed and the memorial immune response was obvious but the immune sera had no effect on the growth of P f. in vitro .Conclusion Both the recombinant protein and plasmid DNA based on HRP2 have different immune characteristics in mice. HRP2 recombinant protein has the potential in practical application.

Key words Plasmodium falciparum histidine rich protein 2 vaccine immune response

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通讯作者

作者个人主页 李珣;缪军;薛采芳;甄荣芬;刘忠湘;王宪锋;穆士杰