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Title: Oral immunization with transgenic tomato anti-caries vaccine expressing chimeric PacP/CTB protein in rabbits

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摘要: 目的 观察表达嵌合体蛋白PacP/CTB转基因番茄防龋疫苗的免疫原性和免疫反应性。 方法 用Pac标准蛋白制作标准曲线, ELISA法检测番茄果实PacP/CTB蛋白的浓度。实验动物按完全随机分组法分为3组, 实验组喂食3个剂量(PacP/CTB蛋白量相差1.5倍)的转基因番茄汁, 阴性对照组喂食非转基因番茄汁, 阳性对照组喂食变异链球菌灭活全菌疫苗。每周免疫1次, 免疫4周, ELISA法检测大白兔唾液和血液样品中抗变异链球菌Pac的IgA、IgG抗体效价水平。 结果 转基因番茄中PacP/CTB嵌合蛋白的浓度为9.37 μg/mL。疫苗免疫动物后实验组与阳性对照组大白兔唾液和血液中的特异性抗Pac抗体升高, 抗体水平可维持数周, 而阴性对照组抗体水平变化不明显。 结论 表达嵌合体蛋白PacP/CTB的转基因番茄免疫新西兰大白兔后, 能有效的诱导唾液和血液中特异性抗体的产生, 其具有较好的免疫原性。

Abstract: Objective To observe the immunogenicity and immunoreactivity of the transgenic tomato anti-caries vaccine expressing chimeric protein of proline-rich region of *Streptococcus mutans*

(*S.mutans*) surface protein PAC (PACp) and cholera toxin B subunit (CTB) *in vivo*.

Methods The standard curve of PAC was made from the standard protein, and the concentration of chimeric protein PACp/CTB was detected by ELISA. A total of 20 New Zealand white rabbits (6 to 8 weeks old) were randomly divided into 3 groups, that is, experiment group ($n=12$, including 3 subgroups, fed with the 3 different doses of transgenic tomato juice which corresponding for PACp at 65.6, 93.7 and 121.87 μg respectively), negative group ($n=4$, fed with non-transgenic tomato juice) and positive group ($n=4$, fed with inactivated whole cell vaccine of *S.mutans*). All rabbits were immunized once a week, for 4 consecutive weeks. ELISA was used to measure the titers of immunogenic antibodies IgG and IgA against PAC of *S.mutans* in the saliva and serum in 1 d before and in 1 to 12 weeks after the first immunization respectively.

Results The concentration of chimeric PACp/CTB protein was 9.37 $\mu\text{g}/\text{mL}$. The PAC-specific antibodies were increased in both the saliva and serum of the rabbits from the experimental group and the positive group, and their levels were maintained for several weeks. But the antibodies of negative group had no significant change. **Conclusion** After the rabbits are orally immunized with the transgenic tomato expressing chimeric PACp/CTB protein, the anti-PACp antibodies are effectively induced in the saliva and serum. The transgenic tomato anti-caries vaccine has better immunogenicity.

参考文献/References:

白国辉, 刘建国, 田源, 等. 表达嵌合体蛋白PACp/CTB的转基因番茄防龋疫苗口服免疫大白兔的研究[J]. 第三军医大学学报, 2014, 36(19):2006-2009.

相似文献/References:

[1] 许小辉, 蒋琳, 林居, 等. 光动力学疗法影响变形链球菌生长和形态的体外研究[J]. 第三军医大学学报, 2012, 34(15):1523.

Xu Xiaohui, Jiang Lin, Lin Juhong, et al. Photodynamic therapy on viability and morphology of *Streptococcus mutans* in vitro[J]. J Third Mil Med Univ, 2012, 34(15):1523.

[2] 许小辉, 林居红, 刘明方. 光动力学疗法影响人工菌斑生物膜形成的扫描电镜观察[J]. 第三军医大学学报, 2010, 32(21):2314.

Xu Xiaohui, Lin Juhong, Liu Mingfang. Effect of photodynamic therapy on biological membrane formation of artificial dental plaques[J]. J Third Mil Med Univ, 2010, 32(21):2314.

[3] 刘桥, 林居红, 王金华. 含氟树脂封闭剂与玻璃离子封闭剂抑制牙釉质脱矿能力的体外研究[J]. 第三军医大学学报, 2009, 31(07):601.

LIU Qiao, LIN Ju-hong, WANG Jin-hua. An in vitro study on inhibition of enamel demineralization by fluoride-releasing resin sealant and glass ionomer sealant[J]. J Third Mil Med Univ, 2009, 31(19):601.

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