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摘要:

目的: 观察表达异种鸡EGFR(chicren EGFR, cEGFR)与 IgG $\gamma$ Fc融合基因的口服减毒鼠伤寒沙门菌疫苗对高表达EGFR 的肺癌Lewis细胞小鼠移植瘤生长的抑制作用。方法: 将pVAX1-cEGFR- $\gamma$ Fc质粒转化减毒沙门菌SL7207, 重组菌SL7207/pVAX1-cEGFR- $\gamma$ Fc体外感染小鼠腹腔巨噬细胞, 免疫荧光法检测cEGFR- $\gamma$ Fc融合蛋白的表达。SL7207/pVAX1-cEGFR- $\gamma$ Fc重组菌口服免疫小鼠3次后接种Lewis细胞, Western blotting检测小鼠体内融合蛋白的表达, ELISA法检测免疫小鼠血清抗EGFR抗体的水平。接种Lewis细胞14 d后处死小鼠, 瘤体称质量, 检测SL7207/pVAX1-cEGFR- $\gamma$ Fc疫苗对Lewis肺癌生长的抑制作用, 测定荷瘤小鼠的生存时间。结果: 成功构建减毒沙门菌疫苗SL7207/pVAX1-cEGFR- $\gamma$ Fc, SL7207/pVAX1-cEGFR- $\gamma$ Fc感染后, 在小鼠后体内外都能检测到cEGFR- $\gamma$ Fc融合蛋白的表达; SL7207/pVAX1-cEGFR- $\gamma$ Fc疫苗口服免疫后小鼠能够产生高水平的抗EGFR抗体, 口服SL7207/pVAX1-cEGFR- $\gamma$ Fc疫苗能够有效抑制小鼠Lewis移植瘤的生长, 延长荷瘤小鼠的生存时间。结论: 异种EGFR口服DNA疫苗能够有效地抑制高表达EGFR肺癌的生长, 是EGFR分子靶向治疗的一条新途径。

关键词: [减毒沙门氏菌](#) [表皮生长因子受体](#) [肺肿瘤](#) [DNA疫苗](#) [异种同源抗原](#)

Oral DNA vaccine expressing xenogeneic EGFR inhibits growth of Lewis lung cancer in mice [Download Fulltext](#)

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Abstract:

Objective: To investigate the inhibitory effect of attenuated salmonella typhimurium vaccine, which expressing xenogeneic chicken EGFR and IgG  $\gamma$ Fc, on the growth of Lewis lung cancer (expressed high level of EGFR)-implanted tumors in mice. Methods: pVAX1/cEGFR- $\gamma$ Fc plasmid was transformed into attenuated salmonella typhimurium strain SL7207, and the resultant SL7207/pVAX1-cEGFR- $\gamma$ Fc bacteria were used to infect murine peripheral macrophage in vitro. Then expression of cEGFR- $\gamma$ Fc fusion protein was detected by immunofluorescent assay. Mice were immunized with SL7207/pVAX1-cEGFR- $\gamma$ Fc for 3 times, and then inoculated with Lewis cells. Expression of cEGFR- $\gamma$ Fc fusion protein in mice tissue was detected by Western blotting analysis, and serum anti-EGFR level was determined by ELISA method. The weight of implanted Lewis tumor was measured after 14 d to investigate the anti-tumor effect of SL7207/pVAX1-cEGFR- $\gamma$ Fc vaccine, and the survival time of tumor-bearing mice was also examined. Results: The attenuated salmonella typhimurium DNA vaccine SL7207/pVAX1-cEGFR- $\gamma$ Fc was successfully constructed. The cEGFR- $\gamma$ Fc fusion protein could be expressed in mouse cells after SL7207/pVAX1-cEGFR- $\gamma$ Fc infection in vitro and in vivo. The mice immunized with SL7207/pVAX1-cEGFR- $\gamma$ Fc could produce high level of anti-EGFR antibody. The tumor growth was obviously inhibited and the survival time of tumor-bearing mice was also increased in the SL7207/pVAX1-cEGFR- $\gamma$ Fc vaccine group. Conclusion: The DNA vaccine expressing xenogeneic EGFR can effectively inhibit the growth of EGFR-positive tumors, which is a new EGFR-targeting therapy strategy.

Keywords: [attenuated salmonella typhimurium](#) [epidermal growth factor receptor](#) [lung neoplasmas](#) [DNA vaccine](#) [xenogeneic homologous antigen](#)

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