163~167.EGFR小分子多肽配体修饰提高阳离子脂质体对肿瘤细胞的转染效率[J].张海红,彭金良,徐宇虹.中国肿瘤生物治疗杂志,2012,(2)

EGFR小分子多肽配体修饰提高阳离子脂质体对肿瘤细胞的转染效率

点此下载全文

张海红 彭金良 徐宇虹

江西护理职业技术学院 药学系，江西 南昌 330029;上海交通大学 Med-X研究院，上海 200030;上海交通大学 药学院，上海 200240

基金项目：国家自然科学基金资助项目（No. 30801446）

DOI：

摘要：

目的：用针对表皮生长因子受体（epidermal growth factor receptor，EGFR）的小分子多肽配体D4修饰PEG化的阳离子脂质体，观察其提高质粒DNA和siRNA对肿瘤细胞转染效率的作用。方法：将D4连接在DSPE-PEG2000的末端以修饰PEG化的阳离子脂质体，检测该载体系统对高表达EGFR的人非小细胞肺癌细胞株H1299中质粒DNA转染效率的影响，Sirius照度仪检测质粒DNA转染后H1299细胞荧光素酶的表达，荧光显微镜观察转染FAM-siRNA后H1299细胞的荧光强度。结果：制备的脂质体/质粒DNA复合物随着电荷比的提高，复合物粒径逐渐减小，复合物Zeta电位逐渐升高。在质粒DNA的转染中，与无修饰的非靶向脂质体相比，D4修饰的脂质体可以显著提高H1299细胞中荧光素酶的表达（P<0.05或P<0 01）；D4修饰的脂质体在各个电荷比处对H1299细胞的转染效率显著高于无修饰的非靶向脂质体（P<0.05或P<0.01）。在FAM-siRNA的转染中，荧光显微镜下可以观察到D4修饰的脂质体组有更高水平的FAM荧光强度。结论：D4修饰的阳离子脂质体提高高表达EGFR肿瘤细胞中质粒DNA和siRNA的转染效率。

关键词：基因输送 肿瘤靶向 阳离子脂质体 多肽配体 转染效率

Modification by EGFR small peptide ligand enhances transfection efficiency of cationic liposome on tumor cells

Download Fulltext

ZHANG Hai-hong PENG Jin-liang XU Yu-hong

Department of Pharmacy, Jianxi Vocational Technology College of Nursing, Nanchang 330029, Jiangxi, China;Med-X Research Institute, Shanghai Jiaotong University，Shanghai 200030, China;School of Pharmacy, Shanghai Jiaotong University, Shanghai 200240, China

Fund Project:Project supported by the National Natural Science Foundation of China (No. 30801446)

Abstract:

Objective:To modify PEGylated cationic liposome was modified by small peptide ligand D4 of epidermal growth factor receptor (EGFR), and study its effect on enhancing the transfection efficiency of plasmid DNA and siRNA in tumor cells. Methods: D4 was conjugated to the end of DSPE-PEG2000 to modify the PEGylated cationic liposome, and the effects of this vector system on transfection efficiency of plasmid DNA in EGFR highly-expressed human non-small lung cancer H1299 cells was examined. Luciferase expression in plasmid DNA tranfected-H1299 cells was observed by Siriu sillumination apparatus, and the fluorescence intensity of FAM-siRNA tranfected-H1299 cells was detected by fluorescence microscopy. Results: In prepared liposome/plasmid DNA, with increasing of electric charge ratios, the particle diameter of complex was gradually decreasing and Zeta electric potential was increasing. Compared with non-targeted liposome, liposome modified by D4 significantly increased the expression of luciferase in H1299 cells after plasmid DNA tranfection (P<0.05, or P<0.01); the transfection efficiency of D4-modified liposome with different electric charge ratios on H1299 cells was significantly increased compared with un-modified liposome (P<0.05, or P<0.01). In addtion, in the transfection of FAM-siRNA, an enhanced fluorescence intensity of FAM was observed in the D4-modified liposome group under a fluorescence microscope. Conclusion: D4-modified cationic liposome can improve the transfection efficiency of plasmid DNA and siRNA in EGFR highly-expressed tumor cells.

Keywords:gene delivery tumor targeting cationic liposome peptide ligand transfection efficiency

查看全文 查看/发表评论 下载PDF阅读器