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# 叶酸/聚酰胺-胺作为miR-7基因载体的胶质瘤靶向性研究

刘振林[1],李罡[1],苏治国[1],王骏飞[1],赵玉军[2],陈镭[1],刘洪良[1],姜忠敏[3],刘晓智[1]

1.300162 天津，天津市第五中心医院神经外科，2.神经内科，3.病理科

# Study of Targeting Ability of Folic Acid/polyamide-amine As miR-7 Vector to Glioma

Liu Zhenlin[1],Li Gang[1],Su Zhiguo[1],Wang Junfei[1], Zhao Yujun[2], Chen Lei[1], Liu Hongliang[1],Jiang Zhongmin[3], Liu Xiaozhi[1]

1.Department of Neurosurgery,The Fifth Central Hospital of Tianjin,Tianjin 300162,China,2.Department of Neurology,3.Department of Pathology

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摘要 目的

检测叶酸/聚酰胺-胺（FA/PAMAM）作为miR-7基因载体的细胞转染效率及其胶质瘤靶向功能，为研发高效小分子靶向投递药物奠定基础。方法透析法制备FA/PAMAM络合物，透射电子显微镜观察粒子形貌；以其为载体转染miR-7至人脑胶质瘤细胞系U251，荧光显微镜观察络合物转染效率，qRT-PCR方法检测miR-7水平；制作去胸腺小鼠颅内U251胶质瘤模型，分别经尾静脉、颈内动脉及肿瘤原位进行络合物移植，48 h后取脑制作冰冻切片，荧光显微镜观察络合物在肿瘤内的聚集程度；蛋白印记（Western blot）法检测miR-7靶基因EGFR和细胞增殖活性抗原（PCNA）的蛋白表达。结果粒子形貌规整，与U251细胞共培养48 h后可获得高效转染，并显著提高miR-7水平。经尾静脉、颈内动脉及肿瘤原位三种途径移植后获得的冰冻切片中均可发现络合物粒子在肿瘤部位的聚集，但聚集程度为尾静脉<颈内动脉<肿瘤原位。Western blot结果示EGFR和PCNA水平较对照组均有不同程度下降（P<0.05）。结论FA/PAMAM能够高效投递miR-7基因至体内、外胶质瘤细胞，有望成为一种新的高效小分子靶向投递药物进行胶质瘤基因治疗。

关键词： 胶质瘤 微小RNA 表皮生长因子受体 基因治疗

Abstract: ObjectiveTo explore the gene transfection efficiency of folic acid/polyamide-amine as miR-7 vector and its targeting ability for glioma,so as to lay the foundation to develop an efficient delivery of small molecule drugs targeting glioma.MethodsFA/PAMAM comoles compound was prepared by dialysis method.The transmission electron microscope was performed to observe the morphology of the nanoparticles.After transfecting miR-7 gene into U251 glioma cell line,fluorescence microscope was used to detect the gene transfection efficiency,quantitative RT-PCR was used to detect the miR-7 level.The intracranial glioma model was established in de-thymus mice,the nanoparticles were transplanted by the way of vena caudalis,internal carotid artery,and tumor situ.After 48 hours,the frozen section was obtained to observe the aggregation extent.And immunocytochemistry and western blot methods were used to test the protein expression of EGFR and PCNA.ResultsThe nanoparticle,with sphere morphology,may transfer efficiently the miR-7 gene into U251 glioma cells,and increase the miR-7 level.And it can be found in tumor situ,in spite of by different transplant ways.The aggregation extent was the vena caudalis way less than the internal carotid artery way,and furthermore less the tumor situ way (P<0.05).The protein level of EGFR and PCNA in FA/PAMAM/miR-7 group both lower than the control group(P<0.05).ConclusionFA/PAMAM can transfect effectively miR-7 into glioma both in vivo and in vitro,and is expected to become an efficient delivery of small molecule drugs targeting glioma.

Key words: Glioma microRNA Epidermal growth factor receptor Gene therapy

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没有本文参考文献

[1] 田海龙;刘 瑾;朱正权;孙 哲;刘 亮;夏海成 . 手术联合替莫唑胺治疗维族与汉族成人恶性胶质瘤的疗效观察[J]. 肿瘤防治研究, 2012, 39(1): 116-117.

[2] 林远洪;雷小林;吴永忠;高泽莉 . 靶向EGFR基因的shRNA抑制胰腺癌PANC-1细胞增殖的研究[J]. 肿瘤防治研究, 2011, 38(9): 1012-1015.

[3] 张兴梅;石玉生;陈明;夏许可;李树基;李晓文;曹东林 . EGFRvⅢ的siRNA对胶质瘤细胞凋亡和增殖的影响[J]. 肿瘤防治研究, 2011, 38(9): 975-978.

[4] 邓超;王磊;丁浩然. E-钙黏素在胶质瘤增殖与侵袭中的作用 [J]. 肿瘤防治研究, 2011, 38(8): 957-959.

[5] 潘宇亮;曹培国;张隽;符慧群 . 肝癌衍生生长因子在乳腺癌中的表达及其临床意义[J]. 肿瘤防治研究, 2011, 38(8): 926-929.

[6] 郑克彬;何心;田伟;焦保华. PTEN在正常脑组织及脑胶质瘤中的表达与细胞凋亡的关系 [J]. 肿瘤防治研究, 2011, 38(7): 827-829.

[7] 周围围;任军 . 乳腺癌基底细胞样亚型的免疫组织化学检测与预后分析 [J]. 肿瘤防治研究, 2011, 38(6): 712-713.

[8] 张明阳;范宏宇;韩新华;王东林. HIF-1α、MMP-2和VEGF在脑胶质瘤中的表达及相关性分析 [J]. 肿瘤防治研究, 2011, 38(4): 460-461.

[9] 袁太泽;徐理华;曾木圣;曾奇;曹素梅;张秀萍;郭翔;. 西妥昔单抗联合电离辐射对鼻咽癌细胞的作用[J]. 肿瘤防治研究, 2011, 38(4): 373-376.

[10] 李学军;黄纯海;李萃;简志宏;黄军;袁贤瑞. EGFL7在人脑胶质瘤中的表达及其意义[J]. 肿瘤防治研究, 2011, 38(2): 148-151.

[11] 伍明;李学军;李臻琰;成磊;唐智;袁贤瑞. siRNA转染U251细胞下调Moesin导致PDGF及CD44表达下降[J]. 肿瘤防治研究, 2011, 38(2): 121-125.

[12] 马玲娣;刘乾;王勇;王仕忠;鲍永仪;关乃富;倪诚;樊小龙 . 非小细胞肺癌中CAR和CD46的表达及临床意义[J]. 肿瘤防治研究, 2011, 38(11): 1268-1271.

[13] 黄劲柏;任伯绪;雷红卫;蔡新宇;熊浩;陈昌毅. 胶质瘤的CT灌注成像与微血管密度的相关性[J]. 肿瘤防治研究, 2011, 38(1): 77-79.

[14] 陈寿仁. microRNA与胶质瘤侵袭性关系的研究进展[J]. 肿瘤防治研究, 2011, 38(1): 106-108.

[15] 郭晓强. 异柠檬酸脱氢酶1突变在胶质瘤发生中的 作用[J]. 肿瘤防治研究, 2011, 38(1): 109-111.