409~413.重组 p53 腺病毒对人肺腺癌H1299细胞体内外的抑制作用[J].周小娟,司小敏,王云梅,吕建建.中国肿瘤生物治疗杂志,2013,20(4)

重组 p53 腺病毒对人肺腺癌H1299细胞体内外的抑制作用 点此下载全文

周小娟 司小敏 王云梅 吕建建

西安交通大学医学院 第一附属医院 肿瘤内科，陕西 西安 710061;西安交通大学医学院 第一附属医院 肿瘤内科，陕西 西安 710061;陕西省肿瘤医院 内科，陕西 西安 710061;西安交通大学医学院 第一附属医院 肿瘤内科，陕西 西安 710061

基金项目：陕西省科技计划资助项目（No. 2010k14-02-01）

DOI：10.3872/j.issn.1007-385X.2013.04.005

摘要：

目的： 研究重组 p53 腺病毒（recombinant adenovirus-p53，rAd-p53）在体内、外对肺腺癌H1299细胞（野生型p53基因缺失）生长的抑制作用，观察rAd-p53尾静脉注射治疗肺腺癌的可行性。 方法： MTT法检测rAd-p53对H1299细胞增殖的抑制作用。rAd- p53 以感染复数（multiplicity of infection，MOI）=500感染H1299细胞，24 h 后RT-PCR检测H1299细胞中p53 mRNA表达，72 h后Western blotting 检测P53蛋白的表达、流式细胞术检测H1299细胞凋亡。H1299细胞皮下接种BALB/c 裸鼠，建立裸鼠肺腺癌模型，尾静脉注射rAd-p53，观察肿瘤生长情况，绘制肿瘤生长曲线。 结果： rAd-p53以MOI=500感染H1299细胞，24 h后有野生型p53 mRNA转录，72 h后有P53蛋白表达；且rAd-p53感染可明显抑制H1299细胞增殖，72 h时，rAd-p53组细胞增殖比显著低于对照组（2.8±0.4 vs 6.1±0.5，P <0 05）。感染rAd-p53后，随时间增加H1299细胞凋亡率呈上升趋势，48 h时rAd-p53组细胞凋亡率显著高于对照组，\[（ 27.6±0.05）% vs （4.9±0.09）%， P ＜0.01\]。成功建立H1299细胞荷瘤裸鼠模型，尾静脉注射rAd-p53 2周后移植瘤体积显著小于对照组\[（0 875±0.253） vs （0.479±0.215）cm 3， P <0 05\]。 结论： rAd- p53感染可上调H1299细胞P53蛋白的表达，抑制H1299细胞增殖、促进其凋亡，并且尾静脉注射rAd-p53可明显抑制H1299细胞裸鼠移植瘤的生长。

关键词：重组人 p53 腺病毒 肺腺癌 静脉注射 增殖 移植瘤

Inhibitory effects of recombinant adenovirus- p53 on human lung adenocarcinoma H1299 cells in vitro and in vivo Download Fulltext

Zhou Xiaojuan Si Xiaomin Wang Yunmei Lü Jianjian

Department of Oncology, First Hospital Affiliated to Medical College of Xi′ an Jiaotong University, Xi′ an 710061, Shaanxi, China;Department of Oncology, First Hospital Affiliated to Medical College of Xi′ an Jiaotong University, Xi′ an 710061, Shaanxi, China;Department of Internal Medicine, Cancer Hospital of Shaanxi Province, Xi’ an 710061, Shaanxi, China;Department of Oncology, First Hospital Affiliated to Medical College of Xi′ an Jiaotong University, Xi′ an 710061, Shaanxi, China

Fund Project:Project supported by the Science and Technology Program of Shaanxi Province （No. 2010k14-02-01）

Abstract:

Objective: To investigate the inhibitoty effects of recombinant adenovirus-p53 (rAd-p53) on the growth of lung adenocarcinoma H1299 cells (wtP53-/-) in vitro and in vivo , and observe the treatment feasibility of lung adenocarcinoma with tail intravenous injection of rAd-p53 . Methods: MTT assay was performed to detect the inhibitory effect of rAd- p53 on the proliferation of H1299 cells. After transfected by rAd- p53 with multiplicity of infection (MOI)=500, the expression of p53 mRNA in H1299 cells was detected by RT-PCR at 24 h; the expression of P53 protein in H1299 cells and the apoptosis of H1299 cells were detected at 72 h by Western blotting and flow cytometry, respectively. BALB/c nude mice were injected subcutaneously with H1299 cells to establish a lung adenocarcinoma nude mice model and then the mice were intravenously administrated by rAd-p53 ; the tumor growth was observed and tumor growth curve was drawn. Results: H1299 cells were infected by rAd- p53 with MOI=500; after infection for 24 h, wild-type p53 mRNA was expressed in rAd- p53 group, and at 72 h, wt P53 protein was detected in rAd-p53 group. rAd-p53 infection could significantly inhibit the proliferation of H1299 cells, the cell proliferation ratio of rAd- p53 group was significant lower than that of the control group (2.8±0.4 vs 6.1±0.5, P <0 05). The apoptotic rates of H1299 cells in rAd- p53 group were increased with time, which were significantly higher than those in the control group (\[27.6±0.05\]% vs \[4.9±0.09\]%, P ＜0.01) after infection for 48 h. H1299 tumor-bearing nude mice were successfully established, and the tumor volume of rAd-p53 group was significantly smaller than that of the control group even two weeks after tail intravenous injection (\[0.875±0 253\] cm 3 vs \[0.479±0.215\] cm 3, P <0.05). Conclusion: Tail intravenous infection of rAd-p53 could up-regulate the protein expression of P53 in H1299 cells, then restrain the growth of H1299 cells, promote the apoptosis and significantly inhibit the growth of H1299 cell xenograft tumors in nude mice.

Keywords:recombinant adenovirus- p53 lung adenocarcinoma intravenous injection proliferation xenograft tumor

查看全文 查看/发表评论 下载PDF阅读器