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论著

siRNA抑制DJ-1基因表达对肺鳞癌SK-MES-1细胞生物学行为的影响

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摘要:

目的:采用RNA 干扰技术下调DJ-1 基因在肺鳞癌细胞SK-MES-1 中的表达, 探讨DJ-1 表达下调对SKMES-1 细胞生物学行为的影响, 以期探讨DJ-1 基因的功能。方法:构建靶向DJ-1 基因siRNA 慢病毒载体(重组慢病毒中有绿色荧光蛋白真核表达框), 感染SK-MES-1 细胞(DJ-1 siRNA 组), 并设立慢病毒载体对照组(Control-siRNA 组)及空白对照组。荧光显微镜下观察并计算感染效率, Western 印迹检测各组细胞中DJ-1 蛋白表达水平, MTT法检测细胞增殖能力, 流式细胞术测定细胞周期, Transwell 小室实验检测细胞体外迁移侵袭能力。结果:与Control-siRNA组及空白对照组比较, DJ-1 siRNA 组的DJ-1 蛋白表达受到抑制、细胞增殖能力明显减弱(P<0.01)、G1/G2 期细胞数增多和S 期细胞数减少表明细胞周期受阻、细胞体外迁移和侵袭能力显著减弱(P<0.01)。结论:DJ-1 基因具有促进肺鳞癌细胞SK-MES-1 细胞的增殖和体外迁移侵袭的作用。

关键词: 肺癌 DJ-1 siRNA 细胞增殖 细胞周期 细胞迁移

Effect of DJ-1 siRNA on biological behavior of human lung squamous carcinoma SK-MES-1 cells

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Abstract:

Objective: RNA interference technology (siRNA) was used to inhibit the expression of DJ-1 gene in lung squamous cell carcinoma SK-MES-1 cells, and the cell biological behaviors were investigated to explore the function of DJ-1 gene.
Methods: A targeted DJ-1 siRNA lentiviral vector with a green fluorescent protein (GFP) as a reporter was constructed. The constructed DJ-1 siRNA and control-siRNA vectors were infected into SK-MES-1 cells as experimental (DJ-1 siRNA) and control (Control siRNA) groups, respectively. The DJ-1 protein expression was determined by Western blot. The cell proliferation capability was measured with methyl thiazolyl tetrazolium (MTT). The cell cycle was analyzed by flow cytometry. The capability of cell migration was determined by Transwell method.
Results: Compared with control-siRNA and blank-control groups, the protein expression of DJ-1 gene was down-regulated, the capability of cell proliferation was obviously inhibited (P<0.01), the cell cycle was arrested with increased number of G1- and G2-phase cells and reduced number of S-phase cells, and the capability of cell migration was significantly decreased (P<0.01) in the DJ-1 siRNA-infected cells.
Conclusion: DJ-1 gene might play a role in promoting cell proliferation and cell migration capability in vitro in lung cancer SK-MES-1 cells.

Keywords: lung cancer DJ-1 siRNA cell proliferation cell cycle cell migration

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