

基础研究

RNA干扰沉默HMGN5基因对肺癌H1299细胞增殖和周期的影响

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摘要:

目的:探讨RNA干扰技术沉默高迁移率族核小体结合域5(HMGN5)基因对肺癌H1299细胞增殖和细胞周期的影响,为肺癌的基因靶向治疗提供理论依据。方法:构建HMGN5特异性siRNA慢病毒载体,感染肺癌H1299细胞,设阴性对照组及干扰组,应用Real-time PCR和Western blotting方法分别从mRNA和蛋白质水平检测各组干扰质粒对HMGN5基因的干扰效果,MTT和BrdU法检测HMGN5 siRNA作用下的细胞增殖率,流式细胞仪检测细胞周期变化。结果:与阴性对照组比较,干扰组HMGN5的mRNA表达量下降了50.7%(P< 0.05),蛋白表达水平明显降低(P<0.05); MTT检测,干扰组细胞增殖水平明显低于阴性对照组;BrdU实验RNAi干扰组细胞增殖率(37.8%)明显低于对照组(55.0%)(P< 0.05);流式细胞仪检测细胞G<sub>1</sub>期细胞百分比(54.6%±0.9%)高于阴性对照组(46.5%±0.4%)(P<0.05)。结论:运用RNA干扰技术能够有效沉默H1299细胞的HMGN5基因,并抑制肺癌细胞的增殖能力,提示HMGN5在肺癌的发生发展中起重要作用,抑制HMGN5的表达可能成为一种治疗肺癌的方法。

关键词: RNA干扰; 高迁移率族核小体结合域5; 肺肿瘤; 细胞增殖; 细胞周期

Effect of RNAi targeting HMGN5 gene on proliferation and cell cycle of lung cancer H1299 cells

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Abstract:

Abstract: Objective To explore the effect of high-mobility group nucleosome binding domain 5(HMGN5) by RNAi on proliferation and cell cycle of lung cancer cell line H1299, and provide a theoretical basis for lung cancer targeted therapy. Methods SiRNA targeting HMGN5 gene was cloned into lentivirus vector. SiRNA-HMGN5 lentivirus particles were infected into H1299 cells in order to silence the expression of HMGN5. Negative control group and RNAi group were set up. The interfering efficiencies of the plasmids on HMGN5 gene were detected at the mRNA and protein levels by Real-time PCR and Western blotting. The proliferation of H1299 was analyzed by MTT and BrdU assay. The cell cycle was detected by flow cytometry. Results Compared with negative control group, the expression of HMGN5 mRNA in RNAi group was down-regulated by 50.7%(P< 0.05); the protein level was significantly decreased(P<0.05). Compared with negative control group, the proliferation rate of H1299 cells was decreased by MTT assay. BrdU assay results showed that the cell proliferation rate of H1299 in RNAi group (37.8%) was significantly lower than that in negative control group(55.0%)(P< 0.05). The percentage of cells at G<sub>1</sub> phase (54.6%±0.9%) in RNAi group was increased compared with negative control group (46.5%±0.4%)(P< 0.05). Conclusion Silencing HMGN5 gene can inhibit the proliferation of H1299 cells. It shows that HMGN5 plays a role in the development of lung cancer and it may be beneficial in finding a new therapy for lung cancer.

Keywords: RNA interference; high-mobility group nucleosome binding domain 5; lung neoplasms; cell proliferation; cell cycle

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