



腺病毒介导的shRNA沉默hTERT基因表达对鼻咽癌细胞增殖和凋亡的影响

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Effect of Adv Vector-mediated shRNA Targeting hTERT on Proliferation and Apoptosis of Nasopharyngeal Carcinoma Cells

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- 摘要
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全文: PDF (1046 KB) HTML (0 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 目的探讨靶向人端粒酶反转录酶(hTERT)的短双链RNA(shRNA)对人鼻咽癌细胞株CNE-2 hTERT表达的影响,及其对鼻咽癌细胞增殖和凋亡的效应。方法构建表达绿色荧光蛋白(EGFP)基因和靶向hTERT基因短双链RNA的重组腺病毒质粒,观察其对鼻咽癌细胞株(CNE-2)的转染效果,RT-PCR检测hTERT mRNA表达水平,Western blot检测hTERT蛋白表达水平,CCK-8法检测细胞增殖活性,流式细胞仪检测细胞凋亡状况。结果Adv-EGFP-shTERT重组腺病毒质粒转染率可达90%以上,成功转染CNE-2细胞24 h后,hTERT mRNA的表达水平显著下降,转染48 h后,hTERT蛋白表达明显下调,细胞增殖活性受到显著抑制,细胞凋亡率可达23.0%。结论腺病毒载体介导靶向hTERT基因的RNA干扰,能显著抑制端粒酶反转录酶表达,进而抑制端粒酶活性,抑制CNE-2细胞增殖并诱导其凋亡,为鼻咽癌的基因治疗研究提供了理论基础。

关键词: RNA干扰 腺病毒载体 hTERT基因 NPC细胞

Abstract: Objective To evaluate the effect of targeting hTERT gene on the proliferation and apoptosis of CNE-2 cells by applying RNA interference to restrain the expression of hTERT in nasopharyngeal carcinoma CNE-2 cells. Methods Recombinant adenovirus vectors expressing EGFP and human TERT shRNA were constructed and transfected in human nasopharyngeal carcinoma CNE-2 cells. The expression levels of hTERT mRNA and protein were detected respectively by RT-PCR and Western blot method. Cell proliferation was determined by CCK-8 assay and cell apoptosis was observed by FCM (Flow cytometric). Results The transfection rate of Adv-EGFP-shTERT recombinant adenovirus plasmid in CNE-2 cell line was more than 90%. The expression levels of the hTERT mRNA and protein were dramatically declining respectively at 24h and 48h after transfection. Cell proliferation activity was significantly inhibited and the cell apoptosis reached 23.0%. Conclusion Adv vector-mediated RNAi targeting hTERT can inhibit the activity of telomerase reverse transcriptase by down-regulating the expression of the hTERT mRNA and its protein significantly, therefore can inhibit the growth of the cells and induce their apoptosis. Future application of RNAi to the gene therapy of nasopharyngeal carcinoma might be expected.

Key words: RNA interference Viral vectors hTERT genes NPC cells

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