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miR-663通过靶向TGFB1对肺癌细胞A549增殖的调控

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Regulation of Lung Cancer Proliferation by miR-663 through Targeting TGFB1

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摘要

目的

利用双荧光蛋白报告基因分析系统,验证miR-663的直接靶基因TGFB1,探讨miR-663促进肺癌细胞A549增殖的可能机制。方法实时定量RT-PCR检测10对肺癌组织和正常肺组织中miR-663的表达水平;利用细胞计数和集落形成实验来验证细胞转染miR-663 ASO后的A549细胞增殖。选取表达绿色荧光蛋白的质粒 pcDNA3/EGFP,将TGFB1 3′ UTR的一段特异性序列插入该质粒中,并与miR-663及表达红色荧光蛋白质pDsRed2 -N1共同转染肺癌细胞系A549,转染后细胞提取的蛋白样品,荧光分光光度计进行定性和定量检测。结果miR-663在肺癌组织中的表达高于在正常肺组织中的表达;miR-663表达明显促进了细胞A549的增殖;共转miR-663和pcDNA3/EGFP-TGFB13′ UTR质粒后,绿色荧光蛋白的表达量明显低于pcDNA3和pcDNA3/EGFP- TGFB 13′ UTR共转组。结论miR-663可能通过靶定靶基因TGFB1,促进了肺癌细胞A549的增殖。

关键词: 肺癌 A549 miR-663 转化生长因子B1 靶基因

Abstract:

Objective

To identify the miR-663 targeted gene TGFB1 using a dual fluorescent protein reporter assay system and to reveal the possible mechanism of miR-663 to promote the proliferation of A549 lung cancer cells.MethodsThe expression of miR-663 in lung cancer in 10 pairs of lung cancer tissues and in their adjacent normal tissues was measured using microRNA specific qRT-PCR.Than the effects of miR-663 on the proliferation of A549 cells transfected by miR-663 LNA (locked nucleic acid) was analyzed by cell growth curve and colony formation assay.A sequence of TGFB1 3′ UTR(untranslated region) was inserted into the plasmid which expressed green fluorescent protein (pcDNA3/EGFP).This plasmid (pcDNA3/EGFP- TGFB1 3′ UTR) and miR-663 and the plasmid expressed red fluorescent protein (pDsRed2 -N1) were cotransfected into A549 cells.The cells and the extracted protein had been detected under fluorescence microscope and the fluorescence spectrophotometer respectively.ResultsMiR-663 was highly expressed in lung cancer tissues and A549 cells.Decreased level of miR-663 could significantly inhibit the proliferation of lung cancer cells.After miR-663 and the plasmid of pcDNA3/EGFP- TGFB1 3′ UTR being cotransfected,the intensity of green fluorescent protein was significantly lower than that in the group of cotransfected pcDNA3/EGFP- TGFB1 3′ UTR with pcDNA3.ConclusionThis study demonstrated that miR-663 contributes to A549 cell proliferation through direct regulating of the expression of TGFB1 directly.

Key words: Lung carcinoma A549 miR-663 TGFB1 Target gene

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