

论文

STAT3-siRN表达载体的构建及其对胃癌细胞株HGC-27细胞增殖的影响

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摘要:

目的 构建针对信号转导子和转录激活子3(signal transducer and activator of transcription 3, STAT3)的小干扰RNA(siRNA)表达载体STAT3-siRNA, 研究siRNA干扰STAT3基因表达后对人胃癌细胞株HGC-27细胞增殖作用的影响。方法 设计并合成两个STAT3-siRNA片段, 经脂质体介导转染HGC-27细胞, RT-PCR和Western blot检测转染后HGC-27细胞中STAT3 mRNA和蛋白的表达, MTT法检测STAT3-siRNA对HGC-27细胞增殖作用的影响。结果 酶切及测序鉴定证实STAT3-siRNA1和STAT3-siRNA 2表达载体均构建成功。RT-PCR和Western blot结果显示, 转染后STAT3 mRNA和蛋白的表达量均下降, 与空白对照组及si-NC转染对照组相比, 差异具有统计学意义(P<0.01), 其中以STAT3-siRNA1干扰效果更明显。MTT结果显示, 转染STAT3-siRNA1后, HGC-27细胞的增殖能力明显下降, 与si-NC转染对照组相比, 差异具有统计学意义(P<0.01)。结论 本研究构建的STAT3-siRNA表达载体可有效抑制STAT3在胃癌细胞株HGC-27中的表达, 并抑制胃癌细胞的生长。

关键词: 信号转导子和转录激活子3; RNA干扰; 胃癌; 增殖

Construction of STAT3-siRNA expression vector and its effect on proliferation of stomach cancer cell line HGC-27

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Abstract:

Objective To construct siRNA expression vectors targeting the signal transducer and activator of transcription 3(STAT3) gene and to examine the inhibitory effect of the siRNAs on the expression of STAT3 and its effect on proliferation of stomach cancer cell line HGC-27. Methods Two STAT3-siRNA fragments were synthesized, and then transfected into HGC-27 cells. STAT3 mRNA and protein were examined by RT-PCR and Western blot, respectively. Inhibition on proliferation was determined by the MTT assay. ResultsThe two STAT3-siRNA expression vectors were found to contain the correct siRNA sequences, as confirmed by sequencing and enzymatic digestion. Results of RT-PCR and Western blot showed that the abundances of STAT3 mRNA and protein were significantly decreased relative to both the control and si-NC groups (P<0.01), results with STAT3-siRNA1 being more pronounced than with STAT3-siRNA2. MTT assay showed that, after transfection, cell proliferation in the siRNA group was reduced significantly compared with the si-NC group (P<0.01). Conclusion Expression of STAT3-siRNA in stomach cell line HGC-27 can effectively inhibit STAT3 expression, leading to proliferation suppression.

Keywords: Signal transducer and activator of transcription 3; RNA interference; Stomach cancer; Proliferation

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