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RNAi 沉默 STAT3 对结直肠癌SW480细胞的抑制作用及其机制 点此下载全文

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摘要：

目的：慢病毒介导siRNA沉默结直肠癌SW480细胞内信号转导和转录活化因子3（signal transducer and activators of transcription 3， STAT3）的表达，观察其对SW480细胞凋亡、侵袭、集落形成及下游信号分子Mcl-1、caspase3表达的影响。方法：用携带针对STAT3 的siRNA的慢病毒Lenti-STAT3-siRNA感染SW480细胞，Real-time PCR 和Western blotting分别检测Lenti-STAT3-siRNA感染对SW480细胞内STAT3、 Mcl-1及caspase3 mRNA和蛋白表达的影响，流式细胞术检测下调STAT3 表达对SW480细胞凋亡的影响。Transwell实验检测下调 STAT3 表达对SW480细胞侵袭能力的影响。结果：Lenti-STAT3-siRNA组SW480细胞STAT3 mRNA和蛋白的相对表达量较Lenti-GFP组和对照组显著降低（均 P <0.05）。Lenti-STAT3-siRNA组SW480细胞集落形成能力受到抑制，对照组、Lenti-GFP组和Lenti-STAT3-siRNA组SW480细胞凋亡率分别为1.32%、4 92%及11.9%，Lenti-STAT3-siRNA组SW480细胞穿膜细胞数较对照组和Lenti-GFP组显著下降\[（178.49±15.42） vs （340 20±41.31）、（320 61±13.30）个，均 P <0.05\]。Lenti-STAT3-siRNA组 Mcl-1 mRNA和蛋白的相对表达量显著降低（均 P <0.05），caspase3 mRNA和蛋白的相对表达量显著增加（均 P <0.05）。 结论：慢病毒Lenti-STAT3-siRNA感染能够有效下调结直肠癌细胞SW480内STAT3基因的表达，促进其凋亡并抑制其侵袭、集落形成能力，其机制可能与降低 Mcl-1、提高caspase3 的表达有关。

关键词：结直肠癌 SW480细胞 STAT3 信号转导通路 慢病毒表达载体 siRNA

Growth inhibition and underlying mechanisms following siRNA silencing of STAT3 in colorectal cancer SW480 cells Download Fulltext

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Abstract:

Objective:To determine the effect of siRNA silencing of signal transducer and activators of transcription 3 (STAT3) gene on proliferation/apoptosis, invasion, colony formation, and Mcl-1 and caspase3 expression of colorectal cancer SW480 cells in vitro . Methods: SW480 cells were infected by a GFP-STAT3-siRNA-carrying lentivirus vector or a GFP-carrying control vector. At 72 h after infection, mRNA and protein levels of STAT3, Mcl-1, and caspase3 were analyzed by Real-time PCR and Western blotting respectively, apoptosis by flow cytometry, the invasive activity by transwell assays in the infected SW480 cells. Results: The colony forming ability of SW480 cells was significantly suppressed after infection with the lentiviral vector carrying GFP-STAT3-siRNA as compared to the GFP-carrying control vector (P <0 05). Infection with the lentirival vector carrying GFP-STAT3-siRNA significantly decreased mRNA and protein levels of STAT3 and Mc1-1 (P <0.05), significantly increased mRNA and protein levels of caspase3 (P <0.05), significantly increased the percentage of apoptotic cells (11.9% vs 4.92%, P <0.05), and significantly reduced the invasive activity (178.49±15.42 vs 320.61±13.30, P <0.05) in SW480 cells as compared with the control vector infection. Conclusion: Silencing of the STAT3 gene in colorectal cancer cells promotes apoptosis and inhibits invasion and colony formation, possibly through modulating the expression of Mc1-1 and caspase3.

Keywords:colorectal cancer SW480 cell STAT3 signal transduction pathway lentivirus expression vector siRNA

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