

特异性沉默EPB49对结直肠癌细胞转移能力的影响以及作用机制

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Title: The effect of specific silencing EPB49 on cell metastasis of colorectal cancer and its mechanism

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摘要: 目的: 研究小干扰RNA (small interfering RNA, siRNA) 特异性沉默红细胞膜蛋白带4.9 (erythrocyte brane protein band 4.9, EPB49) 对结直肠癌SW480细胞增殖、侵袭、迁移的影响以及可能的作用机制。方法: 将结直肠癌SW480细胞分为空白对照组、NC对照组(转染阴性对照siRNA-NC)、siRNA-EPB49组, 通过Lipofectamine 2000将siRNA-NC和siRNA-EPB49转染入SW480细胞; CCK-8实验检测细胞的增殖活力; Transwell法检测SW480细胞侵袭、迁移能力的变化; 蛋白质印迹法(Western Blot)检测EPB49、信号转导与转录因子3(signal transduction and transcription factor 3, STAT3)、磷酸化STAT3 (phosphorylated STAT3, p-STAT3)、另一类激酶2 (just another kinase 2, JAK2)、磷酸化JAK2 (p-JAK2) 蛋白的表达。结果: 沉默EPB49表达后, 与空白对照组相比, siRNA-EPB49组细胞中EPB49蛋白的表达量显著降低 ($P<0.05$), 细胞增殖活性显著增加 ($P<0.05$), 侵袭、迁移能力显著增加 ($P<0.05$); Western Blot检测结果表明特异性沉默EPB49后SW480细胞中p-STAT3、p-JAK2蛋白表达量明显增加 ($P<0.05$)。结论: 沉默EPB49可促进结直肠癌细胞增殖、侵袭、迁移, 此作用与JAK2/STAT3信号通路有关。

Abstract: Objective: To investigate the effect of small interfering RNA (siRNA) silencing erythrocyte brane protein band 4.9 (EPB49) on proliferation, invasion and migration of colorectal cancer SW480 cells and its possible mechanism. Methods: Colorectal cancer SW480 cells were divided into blank control group, NC control group (transfected negative control siRNA-NC), siRNA-EPB49 group. siRNA-NC and siRNA-EPB49 were transfected into SW480 cells by Lipofectamine 2000. The proliferation activity of the cells was detected by CCK-8 experiment. Transwell assay was used to detect the invasion and migration of SW480 cells. Western Blot was used to detect the expression STAT3 (p-STAT3), just another kinase 2 (JAK2), and phosphated JAK2 (p-JAK2) protein. Results: After silencing EPB49 expression, the expression of EPB49 protein in siRNA-EPB49 group was significantly decreased than that in blank control group ($P<0.05$), and the cell proliferation activity, invasion and migration ability increased significantly ($P<0.05$). The results of Western Blot showed that the expression of p-STAT3 and p-JAK2 in SW480 cells increased significantly after EPB49 silenced ($P<0.05$). Conclusion: Silencing EPB49 can promote the proliferation, invasion and migration of colorectal cancer cells, which is related to the JAK2/STAT3 signaling pathway.

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