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306~311.沉默 AQP-5 对人结肠癌HT-29细胞的增殖、凋亡及其化疗敏感性的影响[J].石晓明,吴胜春,杨永宾,唐雷,吕柏楠.中国肿瘤

沉默 AQP-5 对人结肠癌HT-29细胞的增殖、凋亡及其化疗敏感性的影响 点此下载全文

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摘要:

目的: 探讨小干扰RNA(small interference RNA,siRNA)沉默水通道蛋白-5(aquaporin-5,AQP-5 )的表达对人结疗药敏感性的影响。 方法: 以合成的AQP-5-siRNA序列转染HT-29细胞,采用Western blotting检测AQP-5-siRNA的转染效率 e B, SRB)染色法检测各组细胞的增殖抑制率,流式细胞术检测HT-29细胞的调亡。分光光度法检测HT-29细胞caspase-3活性,I ng检测AQP-5-siRNA转染后HT-29细胞中 PCNA和P53 在mRNA和蛋白水平的表达。选用5-氟尿嘧啶(5-fluorouracil,5-FU AQP-5-siRNA转染细胞,SRB染色法检测细胞的增殖抑制率,以金正均法计算两药联合作用的Q值。 结果: 与NC-HT-29细胞相比QP-5蛋白的表达显著下降(P <0.05)。SRB检测显示,AQP-5-siRNA-HT-29细胞的增殖抑制率显著增加\[(9.23±0.51)%细胞术检测显示,AQP-5-siRNA-HT-29细胞的调亡率显著升高\[(10 81±1.32)% vs (0.99±0.18)%, P <0.05\]。Real -time PCR和Western blotting结果显示,AQP-5-siRNA-HT白表达明显下降(P <0.05),同时,P53 mRNA和蛋白表达明显上升(P <0.05)。AQP-5-siRNA+5-FU组细胞的增殖对5-FU组\[(44.93±2.28)% vs (9.11±0.32)%、(25.68±1.71)%,均 P <0.05\],AQP-5-siRNA+DDP组细胞的组加的15-FU组为16(39.01±1.76)。vs (9.11±0.32)%、(18.47±1.25)%,P <0.05\],而且,AQP-5-siRNA与5-F1.51,均表现为协同作用。结论:AQP-5-siRNA能抑制HT-29细胞增殖、促进其调亡、并提高HT-29细胞对5-FU和DDP的化疗物

关键词: 水通道蛋白5 结肠肿瘤 RNA干扰 化疗敏感性 增殖 凋亡

Silencing AQP-5 on proliferation, apoptosis and chemosensitivity of human colon cancer HT-29 cells Do.

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## Abstract:

Objective: To investigate the effect of siRNA (small interference RNA, siRNA) silencing aquaporin-5 ( AQP-5 proliferation, apoptosis, and chemosensitivity of human colon cancer HT-29 cells. Methods: A synthetic AQP-5-s transfected into HT-29 cells, and the inhibition efficiency was detected by Western blotting. Sulphorhodami to detect the cell proliferation inhibition rate. Cell apoptosis of HT-29 cells were detected by flow cytometry (FC in HT-29 cells was measured by spectrophotometry. The mRNA and protein levels of PCNA and P53 in HT-29 cel transfection were determined by real-time PCR and Western blotting. 5-fluorouracil (5-FU) and cisplatin (DDP) AQP-5-siRNA-HT-29 cells, and SRB assay was used to detect the cell proliferation inhibition rate. The "Q" Metl to evaluate the interaction of the two drugs. Results: SRB assay showed that compared with  $\frac{NC-HT-29}{NC-HT-29}$  cell significantly decreased in AQP-5-siRNA-HT-29 cells ( $\frac{P}{NC-HT-29}$  cells ( $\frac{P}{NC-HT-29}$  cells, the proliferation of the two drugs. Results: SRB assay showed that compared with  $\frac{NC-HT-29}{NC-HT-29}$  cells ( $\frac{P}{NC-HT-29}$  cells). increased significantly in AQP-5-siRNA-HT-29 cells (\[9.23 \pm 0 \] 51\]% vs 0, P <0.05). Flow cytometry ana with NC-HT-29 cells, the cell apoptosis rate increased dramatically in AQP-5-siRNA-HT-29 cells (\[10.81 \pm 1.32\])9 <0.05). The activities of caspase-3 were also increased in AQP-5-siRNA-HT-29 cells compared with NC-HT-29 ( \[ 0.09\pm 0.01\], P <0.05). Real-time PCR and Western blotting results indicated that compared with NC-H protein levels of PCNA were decreased ( P <0.05), simultaneously, the mRNA and protein levels of P53 were AQP-5-siRNA-HT-29 cells. Compared with AQP-5-siRNA-HT-29 cells or 5-FU-HT-29 cells, the proliferation inhibitic remarkably in AQP-5-siRNA+5-FU-HT-29 cells(\[ $[44.93\pm2.28$ \]% vs \[ $[9.11\pm0$  32\]%, \[ $[25.68\pm1$  71\]%, F Compared with AQP-5-siRNA-HT-29 cells or DDP-HT-29 cells, the proliferation inhibition rate was increased remaining the compared with AQP-5-siRNA-HT-29 cells or DDP-HT-29 cells, the proliferation inhibition rate was increased remaining the compared with AQP-5-siRNA-HT-29 cells or DDP-HT-29 cells. HT-29 cells (\[39.01 $\pm$ 1 76\]% vs \[9 11 $\pm$ 0.32\]%, \[18.47 $\pm$ 1.25\]%, P <0.05), respectively. Moreover showed between AQP-5-siRNA and 5-FU or DDP with Q value of 1.38 and 1.51, respectively. Conclusion: AQP-5proliferation, promote the apoptosis of HT-29 cells, and increase the chemosensitivity of HT-29 cells to 5-FU and

Keywords: aquaporin 5 colonic neoplasm RNA interference chemosensitivity proliferation apoptosis

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