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基础研究

胡桃醌对人结肠癌HCT-8细胞黏附及基质金属蛋白酶活性的影响

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摘要:

目的:观察胡桃醌对人结肠癌HCT-8细胞黏附作用、基质金属蛋白酶（MMP2、MMP9）活性及表达的影响，阐明其抑制肿瘤侵袭转移的可能作用机制。方法：取体外培养处于对数生长期人结肠癌HCT-8细胞，分为胡桃醌1.25、2.50、5.00、10.00和20.00 mg.L^{-1} 组，并设空白对照组，处理72 h后通过细胞黏附实验观察HCT-8细胞黏附率的变化，明胶酶谱法检测MMP2和MMP9活性，Western blotting法检测细胞MMP2和MMP9蛋白表达水平。结果：与空白对照组比较，1.25、2.50、5.00、10.00和 20.00 mg.L^{-1} 胡桃醌组HCT-8细胞黏附率逐渐降低（P<0.05）；2.50、5.00、10.00和20.00 mg.L^{-1} 胡桃醌组MMP2活性降低（P<0.05），各浓度胡桃醌处理组MMP9活性均降低（P<0.05）；各浓度胡桃醌处理组MMP2、MMP9蛋白表达水平均降低（P<0.01）。结论：胡桃醌明显抑制HCT-8细胞黏附，降低MMP2、MMP9活性及蛋白表达水平，提示MMP2和MMP9活性及蛋白表达水平下降可能是胡桃醌在体外抑制HCT-8细胞黏附的作用机制。

关键词: 胡桃醌；细胞黏附；基质金属蛋白酶；结肠肿瘤

Influence of juglone on adhesion and activities of matrix metalloproteinases in human colon carcinoma HCT-8 cells

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Abstract:

Objective To investigate the influence of juglon on adhesion，activities and expressions of matrix metalloproteinases（MMP2 and MMP9） in human colon carcinoma HCT-8 cells,and clarify the possible mechanism that juglone can inhibit the invation and migration of tumor. Methods The human colon carcinoma HCT-8cells cultivated in vitro at logarithmic growth phase were divided into 1.25,2.50,5.00,10.00 and 20.00 mg.L^{-1} juglone groups,while the control group was set up. The ability of cell adhesion was detected by fibronectin adhesion assay after treated for 72 h，the activities of MMP2 and MMP9 of the cells were detected by gelatin zymography analysis，the expressions of MMP2 and MMP9 proteins were examined by Western blotting method. Results Compared with control group, the adhesion rates of HCT-8 in 1.25，2.50，5.00，10.00 and 20.00 mg.L^{-1}juglone groups were decreased（P<0.05);the activities of MMP2 in 2.50，5.00，10.00 and 20.00 mg.L^{-1} juglone groups was decreased;the activities of MMP9 in all juglone groups with different concentrations were decreased（P<0.05）;the expressions of MMP2 and MMP9 proteins in juglone groups with different concentrations were decreased（P<0.01）. Conclusion Juglone could significantly inhibit the adhesion ability of HCT-8 cells and decrease the activities and protein expressions of MMP2 and MMP9. It is suggested that the decreasing of the activities and protein expressions of MMP2 and MMP9 might be the possible mechanism that juglone can inhibit the adhesion of HCT-8 cells in vitro.

Keywords: juglone；cell adhesion；matrix metalloproteinases;colon neoplasms

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