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Effect of Ginsenoside Rg3 on Cell proliferation and Invasion of Breast Cancer MCF-7 Cell Line

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英文关键词: [ginsenoside Rg3](#) [breast cancer](#) [MMP-9](#) [cell invasion](#)

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中文摘要:

目的 观察人参皂苷Rg3对雌激素受体阳性的乳腺癌细胞MCF-7增殖和侵袭的影响, 并探讨其可能的作用机制。方法 采用MTT法检测细胞的增殖能力, 流式细胞仪分析细胞周期分布以及凋亡比率, 通过Transwell小室观察细胞侵袭力, RT-PCR法检测细胞中的MMP-9 mRNA的表达。结果 与对照组相比, 人参皂苷Rg3能显著抑制MCF-7细胞的增殖; G₀/G₁期及S期细胞比例减少, 而G₂/M期细胞比例显著增加; 同时细胞凋亡比率亦明显提升, 而细胞侵袭指数降低, 且呈现良好的剂量、时间依赖性。同时人参皂苷Rg3还能显著抑制细胞中MMP-9 mRNA的表达水平(P<0.05)。结论 人参皂苷Rg3能抑制MCF-7细胞的增殖和侵袭, 其作用机制可能与其能降低MMP-9基因的表达有关。

英文摘要:

OBJECTIVE To investigate the effect of ginsenoside Rg3 on cell proliferation and invasion of estrogen receptor (ER) positive breast cancer MCF-7 cell line and the potential mechanism. METHODS The proliferation of MCF-7 cell was detected by MTT assay. Cell cycle and apoptosis rate were analyzed by flow cytometry. The effect on cell invasion was assayed by using the transwell methods. The expression of MMP-9 mRNA in MCF-7 cell was analyzed with the RT-PCR. RESULTS Compared with the control group, ginsenoside Rg3 could significantly inhibit the proliferation of MCF-7 breast cancer cells. The cell cycle of MCF-7 was also changed after treated with the ginsenoside Rg3. The percentage of cells in G₀/G₁ and S phase were decreased, whereas the percentage of cells in G₂/M was increased significantly. ginsenoside Rg3 could also induce the MCF-7 cell apoptosis and decrease the index of cell invasion on a time and dose-depended manner. Meanwhile, ginsenoside Rg3 could significantly suppress the expression of MMP-9 mRNA on MCF-7 cell (P<0.05). CONCLUSION ginsenoside Rg3 could inhibit the proliferation and invasion of breast cancer MCF-7 cell line, the underlying mechanism may be related with the inhibitory effect of ginsenoside Rg3 on MMP-9 mRNA expression in MCF-7 cell.

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