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槲皮素对人小细胞肺癌H446细胞增殖和凋亡的影响 点此下载全文

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摘要：

目的： 观察槲皮素(Quercetin) 对人小细胞肺癌H446细胞凋亡的影响，并初步探讨其可能的作用机制。 方法： MTT法检测20、40、80、160、200 μmol/L槲皮素对H446细胞增殖的抑制作用，共聚焦显微镜观察100、200 μmol/L槲皮素处理48 h对H446细胞增殖的影响，流式细胞术检测槲皮素对H446细胞凋亡和细胞周期的影响，Western blotting检测槲皮素对H446细胞内P53、Bcl-2和Bax蛋白表达的影响。 结果： 槲皮素对H446细胞的增殖抑制具有显著的剂量和时间依赖性（P<0.05），在12、24、48及72 h四个时间点，槲皮素作用于H446细胞的IC 50值分别为（172.2±2.6）、（102.4±5.3）、（68.6±2.7）及（48.8 ± 1.9）μmol/L。槲皮素处理后，随着H446细胞密度的降低，细胞核部分皱缩并裂解为凋亡小体，其对H446细胞的促凋亡作用呈现出显著的剂量依赖性，40 μmol/L组H446细胞的凋亡率即显著高于对照组[（8.3±0.4）% vs （4.0±0 5）%; P<0.01]，当药物浓度达到200 μmol/L时凋亡率达到最高。槲皮素能将H446细胞周期特异性地阻滞于G2/M期。与对照组相比，200 μmol/L 槲皮素处理组P53\[（4.98±0.91） vs （0.68±0.26），P<0.01]和Bax蛋白[（4.26±0.23）vs （0.89±0.29），P<0.01]表达显著升高，Bcl-2蛋白表达[（0.36±0.06）vs（8.23±1.65），P<0.01]显著下降。 结论： 槲皮素能够抑制H446细胞的增殖并促进其凋亡，其机制可能与调控Bax、p53和Bcl-2等细胞凋亡相关蛋白有关。

关键词：小细胞肺癌 H446细胞 槲皮素 凋亡 增殖 Bax P53 Bcl-2

Effects of Quercetin on the proliferation and apoptosis of human small cell lung cancer H446 cells Download Fulltext

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Abstract:

Objective : To observe the effect of Quercetin on the apoptosis of small cell lung cancer cell lines H446, and investigate the potential mechanism. Methods: After the treatment of 100 μmol/L and 200 μmol/L quercetin 48 h, confocal microscope was introduced to observe the effect of quercetin on proliferation of H446 cell. MTT assay was used to detect the anti-proliferative effect of quercetin on H446 cells. Flow cytometry was used to detect the influence of quercetin on the cell cycle of H446 cells. The expressions of apoptosis-related proteins P53, Bcl-2 and Bax in H446 cells were determined by Western blotting. Results: After treated with quercetin, nuclear became shrinkage and was divided into a serial of apoptotic bodies as the density of H446 cell decreased. Quercetin inhibited proliferation of H446 cells in a significant dose-dependent (P<0.05) and time-dependent (P<0.05) manner. After treated with quercetin for 12, 24, 48 and 72 h , its IC50 value to H446 cells were (172.2±2.6) , (102.4±5.3), (68.6±2.7) and (48.8±1.9) μmol/L respectively. Quercetin promoted the apoptosis of H446 cells in a significant dose-dependent manner. The apoptosis rate of H446 cell in 40 μmol/L quercetin group was higher than that of the control group ([8.3±0.4]% vs [4.0±0.5]%, P<0.01). When the concentration was arrived at 200 μmol/L, the apoptosis rate achieved the highest. Quercetin caused cell cycle arrest of H446 at the G2/M phase. Compared with the control group, the expressions of P53 ([4.98±0.91] vs [0.68±0.26], P<0.01) and Bax ([4.26±0.23] vs [0.89±0.29], P<0.01) were significantly higher in 200 μmol/L quercetin group, meanwhile, the Bcl-2 expression decreased significantly ([0.36±0.06] vs [8.23±1.65], P<0.01). Conclusion: Quercetin can inhibit the proliferation of H446 cells and promote it apoptosis, and the potential mechanism is probably related with regulation of apoptosis-related proteins such as Bax, P53 and Bcl-2.

Keywords:small cell lung cancer H446 cell quercetin apoptotic proliferation Bax P53 Bcl-2

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