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曲古抑菌素A对人肺腺癌细胞A549的生长抑制作用

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Effects of Trichostatin A on Human Lung Cancer Cell Strains A549

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摘要 摘要：目的 评价组蛋白去乙酰化酶(HDAC)抑制剂曲古抑菌素A(TSA)对肺腺癌细胞株A549的生长抑制作用。方法 分别以体外药物敏感实验、流式细胞术观察TSA处理肺腺癌细胞株A549后，其生长抑制情况以及细胞周期、细胞凋亡等指标的变化，Western blot 检测p21 及细胞外信号调节激酶（ERK）表达水平的变化。结果 TSA对肺腺癌细胞株A549具有生长抑制作用，其细胞毒性呈时间依赖性和浓度依赖性；TSA作用48及96h后，A549细胞凋亡、G0/G1期及G2/M期细胞显著增加(P<0.05)；S期细胞显著下降(P<0.05)。p21蛋白表达显著增强，磷酸化ERK蛋白表达显著下降。结论 HDAC 抑制剂TSA对肺腺癌细胞株A549具有生长抑制作用，其机制可能是上调p21蛋白的表达，阻断ERK通路的活化，从而引起细胞周期的阻滞和细胞凋亡。

关键词： 肺癌 曲古抑菌素A 细胞凋亡 细胞周期

Abstract： ABSTRACT:Objective To explore the effect of trichostatin A (TSA) on human lung cancer cell strains A549. Methods A549 cells were exposed to TSA at different concentrations, then the growth-inhibiting effects of the cell line were detected with 3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide assay; After the cells were exposed to TSA for 48 and 96 hours at 300nmol/L, the change of the cell cycle and apoptosis of A549 were analyzed with flow cytometry. p21 protein and extracellular signal regulated kinase (ERK) expression were detected by Western blot. Results TSA inhibited the growth of A549 cells in time- and concentration-dependent manners. The proportion of apoptosis, G0/G1 and G2/M phase increased in accordance with raising of the TSA concentration. The expression of p21 protein was significantly up-regulated and the expression of phosphorylation ERK was significantly down-regulated after A549 cells were treated with TSA. Conclusions Histone deacetylase inhibitor TSA can inhibit the proliferation of human lung cancer cell strains A549 and induce the cell cycle arrest and apoptosis in the A549 cells. This may be related to up-regulation of p21 protein expression and the down-regulation of phosphorylation ERK.

Keywords： lunc cancer tricdostatin a apoptosis cell cycle

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