

论著

蟾蜍灵对肝癌细胞SMMC 7721的细胞毒作用及生长相关基因表达的影响

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摘要 为探讨蟾蜍灵的抗癌作用机理, 以肝癌SMMC 7721细胞为靶细胞, 应用噻唑蓝还原法检测细胞毒作用, 双荧光染色法和DNA电泳技术检测细胞凋亡与坏死; 免疫组织化学方法检测细胞生长相关基因p21^{waf1/cip1}和增殖细胞核抗原(PCNA)蛋白表达。结果表明, 0.01 $\mu\text{mol} \cdot \text{L}^{-1}$ 及以上浓度蟾蜍灵对SMMC 7721细胞具有显著细胞毒作用, 形态学和DNA片段化检测证实蟾蜍灵诱导的细胞死亡以凋亡为主; p21^{waf1/cip1}在蟾蜍灵诱导下表达上调, 同时PCNA的表达下降, 两者呈负相关 ($P < 0.01$)。提示蟾蜍灵通过上调p21^{waf1/cip1}表达, 下调PCNA表达, 从而抑制肝癌细胞生长。

关键词 [蟾蜍灵](#) [细胞毒性](#) [凋亡](#) [坏死](#) [增殖细胞核抗原](#), [基因表达](#) [细胞系](#), [SMMC 7721](#)

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Effect of bufalin on cytotoxicity and growth related gene expression of human hepatoma cell line SMMC 7721

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Abstract

In present study, we found that bufalin, a component of bufadienoides in the traditional Chinese medicine chan'su, at concentration of 0.01 $\mu\text{mol} \cdot \text{L}^{-1}$ or higher could have a remarkable cytotoxic effect on human hepatoma SMMC 7721 cells. Bufalin could efficiently induce apoptosis and necrosis in SMMC 7721 cells. Immunocytochemical analysis showed that p21^{waf1/cip1} was up-regulated by bufalin in SMMC 7721 cells, which resulted in a decreased expression of proliferating cell nuclear antigen with a negative relationship ($P < 0.01$). The results indicate that bufalin inhibits the growth of SMMC 7721 cells by affecting the gene expression related to cell cycle progression.

Key words [bufalin](#) [cytotoxicity](#) [apoptosis](#) [necrosis](#) [proliferating cell nuclear antigen](#) [gene expression](#) [cell line](#) [SMMC 7721](#)

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