



李小华, 董琳, 侯小燕, 庄英帆. 芦荟多糖通过线粒体途径诱导人肺腺癌A549细胞凋亡[J]. 中国现代应用药学, 2014, 31(3):270-274

芦荟多糖通过线粒体途径诱导人肺腺癌A549细胞凋亡

Apoptosis of Human Lung Adenocarcinoma A549 Cells Induced by Aloe Polysaccharide Through the Mitochondrial Pathway

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英文关键词: [lung adenocarcinoma cell](#); [aloe polysaccharide](#); [apoptosis](#) [mitochondrial pathway](#)

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中文摘要:

目的 观察芦荟多糖(aloe polysaccharide, AP)对人肺腺癌A549细胞的诱导凋亡作用, 并初步探讨其作用机制。方法 AP作用于A549细胞后, 用MTS法检测细胞生长情况, 采用Hoechst荧光染色和DNA ladder检测A549细胞的凋亡情况; 用Western blot法检测凋亡相关分子caspase-9, caspase-8, caspase-3和Bcl-2的表达情况; 应用比色法检测caspase活性。结果 ①AP可呈时间和剂量依赖性抑制A549细胞生长( $P < 0.01$ )。② $40 \mu\text{mol} \cdot \text{L}^{-1}$ 的AP可呈时间依赖性诱导A549细胞出现凋亡形态学改变: 核浓缩、核碎裂和DNA梯状条带; ③A549细胞的caspase-9, caspase-8和caspase-3均在AP处理后24 h内被激活, 且caspase-9和caspase-3早于caspase-8活化( $P < 0.05$ ), Bcl-2蛋白呈时间依赖性下调。结论 AP能够诱导人肺腺癌A549细胞凋亡, 其作用机制可能与AP激活线粒体凋亡途径有关。

英文摘要:

OBJECTIVE To investigate the induction effect of aloe polysaccharide (AP) on lung adenocarcinoma cells line A549 and to explore corresponding mechanism. METHODS After treatment of AP on A549 cells, MTS method was used to measure the growth curve of the cells so as to observe the effect of the AP on the proliferation of A549 cells, and the apoptosis of A549 cells were detected by Hoechst staining and DNA ladder electrophoresis. The expression of caspase-9, caspase-8 and caspase-3 was examined by Western blot and the enzyme activity of these caspases was examined by using a colorimetric method. RESULTS AP could inhibit proliferative activity of A549 cells in

a time-dependent and dose-dependent manner ( $P < 0.01$ ). AP could promote DNA non-random cut morphological changes and chromatin condensation and nuclear fragmentation of apoptosis in a time-dependent manner in A549 cells ( $P < 0.01$ ). The activation of caspase-9, caspase-8 and caspase-3 of A549 cells induced by AP was observed within 24 h, and the activation of caspase-9 and caspase-3 was earlier than that of caspase-8. Expression of Bcl-2 was down-regulated in a time-dependent manner. CONCLUSION AP can inhibit the growth and induce apoptosis of human lung adenocarcinoma A549 cells, the mechanism is associated with activation of the mitochondrial apoptotic pathway.

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