

论著

# 三氧化二砷诱导乳腺癌细胞凋亡以及对Survivin、Caspase\_3蛋白表达的影响

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**摘要** 背景与目的: 探讨不同浓度As<sub>2</sub>O<sub>3</sub>在诱导人乳腺癌细胞MDA-MB-231凋亡过程中的作用, 并研究其对Survivin和Caspase-3蛋白表达的影响。材料与方法: 将3种不同浓度的As<sub>2</sub>O<sub>3</sub>(10.0、20.0、40.0 μmol/L)与MDA-MB-231细胞共培养不同时间后, 采用流式细胞术检测MDA-MB-231细胞凋亡; 用免疫细胞化学技术及Western blot检测Survivin和Caspase-3蛋白的表达。各实验均设相应的对照组。结果: 经10.0、20.0、40.0 μmol/L As<sub>2</sub>O<sub>3</sub>作用后, MDA-MB-231细胞凋亡率分别为(28.89±2.47)%、(46.73±3.82)%和(56.44±4.16)%, 细胞凋亡率在各浓度组间的差异均具有统计学意义(P均<0.01); 免疫细胞化学染色显示Survivin蛋白表达减少, 而Caspase-3蛋白被激活; Western blot条带显示Survivin蛋白表达量降低, 而Caspase-3蛋白则出现被激活的小片段。As<sub>2</sub>O<sub>3</sub>上述的3种作用均存在剂量依赖关系。结论: As<sub>2</sub>O<sub>3</sub>可能通过抑制Survivin蛋白活性, 激活Caspase-3蛋白的表达而诱导MDA-MB-231细胞凋亡。

**关键词** [As<sub>2</sub>O<sub>3</sub>](#); [MDA-MB-231细胞](#); [凋亡](#); [Survivin](#); [Caspase-3](#)

## Arsenic Trioxide Induced Apoptosis in MDA\_MB\_231 Cells and Its Influence on Expression of Survivin and Caspase\_3 Proteins

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**Abstract** BACKGROUND AND AIM: To investigate the apoptosis in MDA-MB-231 cells induced by different concentrations of As<sub>2</sub>O<sub>3</sub> and to study its influence on the activities of Survivin and Caspase-3 proteins. MATERIALS AND METHODS: The rate of apoptosis in human breast carcinoma MDA-MB-231 cells was detected by flow cytometry; the activities of Survivin and Caspase-3 proteins were examined by immunocytochemistry and Western blot in untreated and As<sub>2</sub>O<sub>3</sub>-treated MDA-MB-231 cells. RESULTS: The percentages of the apoptosis in MDA-MB-231 cells were (28.89±2.47)%,(46.73±3.82)% and (56.44±4.16)%, in cells treated for 24 hours with 10.0, 20.0, 40.0 μmol/L As<sub>2</sub>O<sub>3</sub> respectively. As<sub>2</sub>O<sub>3</sub> inhibited the expression of Survivin protein and promoted the expression of Caspase-3 protein. There were obvious dose-effect correlations between As<sub>2</sub>O<sub>3</sub> and its functions. CONCLUSION: The results suggested that As<sub>2</sub>O<sub>3</sub> could induce apoptosis of MDA-MB-231 cells via Survivin protein inhibition and Caspase-3 protein promotion.

**Keywords** [As<sub>2</sub>O<sub>3</sub>](#) [MDA-MB-231 cells](#) [apoptosis](#) [Survivin](#) [Caspase-3](#)

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