

论著

### 三氧化二砷诱导恶性黑色素瘤A375和B16细胞凋亡的研究

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**摘要** 目的: 研究不同浓度的三氧化二砷(As<sub>2</sub>O<sub>3</sub>)对恶性黑色素瘤A375细胞和小鼠B16细胞的凋亡诱导作用, 为As<sub>2</sub>O<sub>3</sub>治疗恶性黑色素瘤提供新的理论和实验依据。方法:用流式细胞术(FCM)检测A375细胞和B16细胞的凋亡诱导及杀伤作用;用不同剂量的As<sub>2</sub>O<sub>3</sub>(0.1 mmol·L<sup>-1</sup>、0.25 mmol·L<sup>-1</sup>和0.5 mmol·L<sup>-1</sup>),对小鼠进行腹腔注射(10 ml·kg<sup>-1</sup>,连续注射10 d后,检测小鼠血清与心、肝、肾有关的生化指标。结果:As<sub>2</sub>O<sub>3</sub>浓度分别为5μmol·L<sup>-1</sup>、10μmol·L<sup>-1</sup>和20μmol·L<sup>-1</sup>时,A375和B16细胞的凋亡率分别为11.85%、55.51%、54.90%和9.81%、26.45%、9.93%。As<sub>2</sub>O<sub>3</sub>诱导A375和B16细胞总的凋亡和坏死率分别为11.90%、55.71%、57.40%和12.96%、26.99%、87.13%;不同剂量的As<sub>2</sub>O<sub>3</sub>(0.1 mmol·L<sup>-1</sup>~0.5 mmol·L<sup>-1</sup>)对小鼠肝、肾和心肌等功能无明显影响,与对照组各项指标无显著性差异(P>0.05)。结论:不同浓度的As<sub>2</sub>O<sub>3</sub>能明显诱导恶性黑色素瘤A375及B16细胞凋亡和坏死,对A375细胞的凋亡诱导作用强于B16细胞。As<sub>2</sub>O<sub>3</sub>(0.1 mmol·L<sup>-1</sup>~0.5 mmol·L<sup>-1</sup>)对小鼠肝、肾和心肌等功能无明显损伤。

关键词 [三氧化二砷](#) [恶性黑色素瘤](#) [凋亡](#) [A375细胞](#) [B16细胞](#)

### THE STUDIES OF APOPTOSIS ON MELANOMA A375 AND B16 CELLS INDUCED BY ARSENIC TRIOXIDE

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**Abstract** Purpose : To study the effects of arsenic trioxide (As<sub>2</sub>O<sub>3</sub>) on the apoptosis in melanoma A375 and B16 cells. Methods : Apoptosis and necrosis in A375 and B16 cells were analysed by flow cytometry ; The serum biochemical parameters in mice concerned with the functions of heart , liver and kidney were also measured after the mice were treated with As<sub>2</sub>O<sub>3</sub> . Results : As<sub>2</sub>O<sub>3</sub> could induce apoptosis and necrosis of A375 and B16 cells. The rates of apoptosis in A375 and B16 cells were 11.85% , 55.51% , 54.90% , and 9.81% , 26.45% , 9.93% , respectively , as treated with different doses of As<sub>2</sub>O<sub>3</sub> (5μmol·L<sup>-1</sup> , 10μmol·L<sup>-1</sup> and 20μmol·L<sup>-1</sup> ) , respectively. The total rates of apoptosis and necrosis were 11.90% , 55.71% , 57.40% and 12.96% , 26.99% , 87.13% , respectively. No significant differences were found in serum biochemical parameters in mice treated with As<sub>2</sub>O<sub>3</sub> . Conclusion : As<sub>2</sub>O<sub>3</sub> can induce apoptosis and necrosis of A375 and B16 cells , but does not cause damage to the functions of liver , kidney and heart in mice.

**Keywords** [arsenic trioxide](#) [melanoma](#) [apoptosis](#) [A375 cell](#) [B16 cells](#)

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