

论著

茶多酚锰络合物诱导肝癌细胞凋亡的差异蛋白质表达

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摘要 **目的** 研究茶多酚锰络合物 (TP-Mn) 诱导肝癌细胞HepG2凋亡过程中差异蛋白质的表达。**方法** HepG2细胞分别与茶多酚 (TP) 700 mg·L⁻¹, TP-Mn 700 mg·L⁻¹, 茶多酚锗 (TP-Ge) 700 mg·L⁻¹作用48 h后, 光学显微镜法观察细胞形态的变化; 流式细胞仪检测细胞凋亡率; 双向聚丙烯酰胺凝胶电泳 (2D-PAGE) 法分离HepG2细胞表达的差异蛋白; 肽质量指纹法鉴定差异蛋白质。**结果** 光学显微镜检查发现, TP和TP-Mn组HepG2细胞数量明显减少, 细胞皱缩变形, 并出现死亡细胞; TP-Ge组HepG2细胞数量无明显减少。流式细胞仪检测发现, TP-Mn组细胞凋亡率为(30.1±0.7)%, 明显高于TP组(12.3±0.4)% ($P < 0.05$)。2D-PAGE结果显示, TP-Mn诱导HepG2细胞凋亡过程中表达了多种差异蛋白质; 肽质量指纹法鉴定结果显示, 其中匹配率较高的差异蛋白质为γ-肌动蛋白和酪氨酸3/色氨酸5-单加氧酶激活蛋白。**结论** TP-Mn具有诱导HepG2细胞凋亡的能力, 并有差异蛋白质表达。

关键词 [茶多酚锰](#) [蛋白质组学](#) [蛋白表达](#) [癌, 肝细胞](#) [细胞凋亡](#)

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Differential protein expression during apoptosis induced by tea polyphenol-manganese in human hepatoma cells

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Abstract

OBJECTIVE To investigate the differential protein expression during apoptosis induced by tea polyphenol-manganese (TP-Mn) in HepG2 cells. **METHODS** HepG2 cells were exposed to TP 700 mg·L⁻¹, TP-Ge 700 mg·L⁻¹ and TP-Mn 700 mg·L⁻¹ for 48 h, respectively. Morphologic changes in HepG2 cells were tested by optical microscope, the number of apoptosis rates were analyzed by flow cytometry, and the differential proteins were identified by peptide mass fingerprinting (PMF). **RESULTS** Optical microscope examination revealed that the number of HepG2 cells was significantly reduced in TP and TP-Mn groups; the cells appeared shrunken and deformed, and these were dead cells. However, the number of HepG2 cells was not significantly reduced in TP-Ge group. The apoptosis rate of HepG2 cells in TP-Mn group was (30.1±0.7)%, which was significantly higher than in TP group (12.3±0.4)% ($P < 0.05$) revealed by flow cytometry. 2D-PAGE showed that multiple differential proteins could be expressed in HepG2 cells during apoptosis induced by TP-Mn. Peptide mass fingerprinting and database searching showed that γ-actin and tyrosine 3-/tryptophan 5-monoxygenase activation proteins were of high score matching. **CONCLUSION** TP-Mn can induce HepG2 cell apoptosis, and multiple differential proteins can be expressed in HepG2 cells during the apoptosis.

Key words [tea polyphenol-manganese](#) [proteomics](#) [protein expression](#) [carcinoma](#) [hepatocellular apoptosis](#)

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