

论著

白藜芦醇诱导鼻咽癌细胞CNE-2Z凋亡的线粒体机制

唐旭东*, 周克元, 侯 敢, 沈晓鸣

(广东医学院生物化学与分子生物学研究所, 广东 湛江 524023)

收稿日期 2003-8-12 修回日期 网络版发布日期 2008-9-9 接受日期 2003-12-17

摘要 目的 探讨白藜芦醇诱导鼻咽癌细胞CNE-2Z凋亡的线粒体机制。方法 用100 $\mu\text{mol}\cdot\text{L}^{-1}$ 白藜芦醇分别处理细胞0(对照), 2, 4, 8, 12, 24 h和分别用0, 25, 50, 100, 200 $\mu\text{mol}\cdot\text{L}^{-1}$ 白藜芦醇处理CNE-2Z细胞8 h, 采用Western印迹分析Bcl-2, Bax和胞浆中细胞色素C(Cyt C)的蛋白水平变化, 罗丹明123荧光染色后经流式细胞术检测线粒体膜电位($\Delta\psi\text{m}$)变化, 比色法测定半胱天冬酶-9的活性改变。结果 ①100 $\mu\text{mol}\cdot\text{L}^{-1}$ 白藜芦醇处理细胞不同时间, Bcl-2蛋白表达和 $\Delta\psi\text{m}$ 减少、胞浆中的Cyt C和半胱天冬酶-9活性增高均呈时间依赖性($P<0.01$), 但Bax蛋白表达无改变。除Bax以外的其他指标均自白藜芦醇处理2 h即有变化。Bcl-2的蛋白表达受抑和 $\Delta\psi\text{m}$ 的丧失在4~8 h间最明显(与对照组比较 $P<0.01$), 在24 h时已无意义。胞浆中Cyt C水平和半胱天冬酶-9活性在8 h达高峰(分别为0 h的3.0, 5.4倍), 24 h时仍明显高于对照组($P<0.01$)。②细胞经不同浓度的白藜芦醇处理8 h后, Bcl-2的蛋白表达受抑、 $\Delta\psi\text{m}$ 的丧失、Cyt C的释放和半胱天冬酶-9活性的升高均具有剂量依赖性($P<0.01$), 但Bax的蛋白表达未受影响。结论 白藜芦醇可能经一个线粒体/半胱天冬酶-9的特定途径诱导CNE-2Z细胞凋亡, 但此凋亡过程可能与Bax无关。

关键词 白藜芦醇 线粒体 细胞色素C 蛋白Bcl-2 蛋白Bax 半胱天冬酶类

分类号 R979.1

Mitochondrial mechanism of apoptosis induced by resveratrol in nasopharyngeal carcinoma cells CNE-2Z

TANG Xu-Dong*, ZHOU Ke-Yuan, HOU Gan, SHEN Xiao-Ming

(Institute of Biochemistry and Molecular Biology, Guangdong Medical College, Zhanjiang 524023, China)

Abstract

AIM To study whether resveratrol-induced apoptosis in nasopharyngeal carcinoma cells CNE-2Z is via a mitochondrial pathway. **METHODS** CNE-2Z cells were treated with 100 $\mu\text{mol}\cdot\text{L}^{-1}$ resveratrol for 0(control), 2, 4, 8, 12, and 24 h and treated with 0(control), 25, 50, 100, and 200 $\mu\text{mol}\cdot\text{L}^{-1}$ resveratrol for 8 h. The Bcl-2, Bax and cytosolic cytochrome C protein levels were analyzed by Western blot. The mitochondrial membrane potential ($\Delta\psi\text{m}$) was detected by flow cytometry following rhodamine 123 fluorescence staining. The caspase-9 activity was determined by colorimetric assay. **RESULTS** ① After CNE-2Z cells were treated with 100 $\mu\text{mol}\cdot\text{L}^{-1}$ resveratrol for 0(control), 2, 4, 8, 12, and 24 h, respectively, Bcl-2 protein expression and $\Delta\psi\text{m}$ were decreased, while cytosolic cytochrome C level and caspase-9 activity were increased in a time-dependent manner ($n=3, P<0.01$). But Bax protein expression had no change. All except Bax protein expression had been altered since 2 h. The inhibition of Bcl-2 protein expression and the loss of $\Delta\psi\text{m}$ were most obvious during 4-8 h (compared with control group $P<0.01$), but no significance at 24 h. Cytosolic cytochrome C level and caspase-9 activity reached the peak at 8 h and were still much higher than those in control group at 24 h ($P<0.01$). Cytosolic cytochrome C level and caspase-9 activity were about 3.0-fold and 5.4-fold of those at 0 h, respectively. ② After CNE-2Z cells were treated with 0(control), 25, 50, 100, and 200 $\mu\text{mol}\cdot\text{L}^{-1}$ resveratrol for 8 h, respectively, the Bcl-2 protein expression inhibition, $\Delta\psi\text{m}$ loss, cytochrome C release, and caspase-9 activity increase showed in a dose-dependent manner ($n=3, P<0.01$). However, Bax protein expression was not affected. **CONCLUSION** Resveratrol can induce apoptosis in CNE-2Z via a mitochondria/caspase-9-specific pathway, but this may not be related to Bax.

Key words resveratrol mitochondria cytochrome C

DOI:

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(470KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“白藜芦醇”的相关文章](#)
- ▶ [本文作者相关文章](#)
- [唐旭东](#)

