

论著

## 用基因芯片研究尼古丁对肺腺癌细胞凋亡基因表达的影响

谢佐福<sup>1</sup>; 郑天荣<sup>2</sup>; 卢林<sup>2</sup>; 袁丁<sup>1</sup>; 周冬梅<sup>2</sup>; 林声<sup>2</sup>

1福建中医学院中西医结合系生理教研室, 2福建省肿瘤医院免疫病理研究室, 福建 福州 350003

收稿日期 2006-4-6 修回日期 2006-6-28 网络版发布日期 2008-8-14 接受日期 2006-6-28

**摘要** 目的: 探讨尼古丁对人肺癌细胞生长的影响及其机制。方法: 采用MTT法分析尼古丁处理人肺腺癌细胞SPC-A后生长变化; 采用基因芯片技术检测尼古丁处理SPC-A-1细胞前后, 细胞凋亡相关基因表达的变化。结果: 尼古丁对SPC-A细胞的生长具有显著的促进作用, 但随着尼古丁浓度的增大, 促进作用也下降。100 μg/L尼古丁处理后, SPC-A-1细胞451个凋亡相关基因中有显著变化的基因有80个, 其中, 促进凋亡相关基因上调的有 29 个, 下调的有13 个; 抑制凋亡相关基因上调的有26个, 下调的有12个。结论: 尼古丁能促进人肺腺癌细胞生长, 调节许多凋亡相关基因表达。

**关键词** [尼古丁](#); [细胞凋亡](#); [肺肿瘤](#)

**分类号** [R363](#)

## Effect of nicotine in vitro on expressions of apoptosis-related genes in human lung adenocarcinoma cells by cDNA microarray

XIE Zuo-fu<sup>1</sup>, ZHENG Tian-rong<sup>2</sup>, LU Lin<sup>2</sup>, YUAN Ding<sup>1</sup>, ZHOU Dong-mei<sup>2</sup>, LIN Sheng<sup>2</sup>

1Department of Physiology, Fujian Traditional Chinese Medical College, 2Department of Immunology, Fujian Provincial Tumor Hospital, Fuzhou 350003, China. E-mail: xiezuofu@sina.com

### Abstract

<FONT face=Verdana>AIM: To investigate effect of nicotine on growth of human lung adenocarcinoma cells and expressions of apoptosis-related gene.  
<BR>METHODS: Lung adenocarcinoma cell line, SPC-A-1, was cultured in the presence of various concentrations (1-1 000 μg/L) of nicotine for 48 hours. MTT was applied to evaluate effect of nicotine in vitro on growth of SPC-A-1 cell line. After SPC-A-1 cells were treated with <BR>100 μg/L for 48 hours, cDNA expression profile microarray was used to detect the expressions of 451 apoptosis-related genes in SPC-A-1 cell line. <BR>RESULTS: Significant proliferation in SPC-A-1 cells treated with nicotine (1-10 μg/L) was observed, but this effect decreased with increase in concentration of nicotine in culture. Growth inhibition rate of 1, 10, 100, 1 000 μg/L of nicotine was 27%, -40%, -40% and -93%. Microarray detection showed that significantly different expressions appeared in 80 of 451 apoptosis-related genes. 29 apoptosis-promoted genes and 26 apoptosis-inhibited genes were up-regulated significantly (CY3/CY5>2.0), and 25 genes were significantly down-regulated (CY3/CY5<0.5). <BR>CONCLUSION: Nicotine may promote growth of human lung adenocarcinoma cell through regulating many apoptosis-related gene expressions.<BR></FONT>

**Key words** [Nicotine](#) [Apoptosis](#) [Lung neoplasms](#)

DOI: 1000-4718

通讯作者 谢佐福 [xiezuofu@sina.com](mailto:xiezuofu@sina.com)

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