



## Noxa基因转染乳腺癌MCF-7细胞的增殖抑制和促凋亡作用

赵志, 吴爱国, 沈三弟

510282 广州, 南方医科大学珠江医院普外科

### Noxa Gene Inhibited Proliferation and Induced Apoptosis in Human Breast Cancer Cell Line MCF-7

ZHAO Zhi, WU Ai-guo, SHEN San-di

Department of General Surgery, Zhujiang Hospital, Southern Medical University, Guangzhou 510282, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (1099 KB) HTML (0 KB) 输出: BibTeX | EndNote (RIS) 背景资料

**摘要** 目的 探讨Noxa基因转染乳腺癌MCF-7细胞的增殖抑制和促凋亡作用。方法 利用脂质体将真核表达载体pIRES2-EGFP-Noxa瞬时转染至乳腺癌MCF-7细胞,通过RT-PCR检测转染后Noxa基因mRNA的表达,Western blot检测转染后蛋白的表达,MTT比色法测定细胞增殖的抑制,流式细胞仪检测细胞的凋亡和细胞周期的变化,Hoechst 33342染色检测细胞的凋亡情况。结果 Noxa基因转染后在乳腺癌MCF-7细胞中成功表达。转染后mRNA及蛋白表达持续上升,其转染后24h、48h、72h mRNA的相对灰度值分别为(0.347±0.031)、(0.703±0.041)、(1.044±0.033),差异具有统计学意义( $P<0.05$ )。转染24h、48h、72h后蛋白表达的相对灰度值为(1.171±0.086)、(1.013±0.088)、(0.886±0.063),差异具有统计学意义( $P<0.05$ )。Noxa基因的表达使得乳腺癌MCF-7细胞出现增殖抑制,其24h、48h、72h抑制率分别为(23.9±4.2)%、(36.6±3.0)%、(47.0±3.3)%,差异具有统计学意义( $P<0.05$ )。流式细胞仪检测显示MCF-7细胞DNA合成受到抑制,细胞周期主要抑制在G0/G1期。其转染24h、48h、72h的G0/G1期分别为(68.1±2.5)%、(72.6±1.5)%、(75.6±0.9)%,与阴性对照组相比,差异具有统计学意义( $P<0.05$ );其24h、48h、72h凋亡率分别为(11.5±0.9)%、(19.6±0.8)%、(25.4±0.7)%,组间差异有统计学意义( $P<0.05$ )。Hoechst 33342染色显示Noxa基因转染后细胞出现凋亡,其24h、48h、72h凋亡率分别为(7.3±4.1)%、(16.8±3.3)%、(23.8±2.3)%,与阴性对照组相比,其差异具有统计学意义( $P<0.05$ )。结论 Noxa基因转染乳腺癌MCF-7细胞后能够抑制细胞增殖并促进其凋亡。

**关键词:** Noxa基因 乳腺癌 转染 凋亡

**Abstract:** Objective To explore the effect of Noxa gene on proliferation and apoptosis of human breast cancer cell line MCF-7. Methods The recombinant eukaryotic expression plasmid pIRES2-EGFP-Noxa was transiently transfected into human breast cancer cell line MCF-7 with lipofectamine. Both Noxa mRNA and protein were detected by RT-PCR and Western blot respectively. The inhibition of cell proliferation was evaluated by MTT assay. Changes in cell cycle were detected by flow cytometry(FCM).The cell apoptosis was studied by Hoechst 33342 staining. Results Exotic Noxa gene was expressed successfully in MCF-7 cells after transfected. The expression of Noxa mRNA and protein of MCF-7 cells was significantly increasing up-regulated after transfected 24h, 48h and 72h(0.347±0.031,0.703±0.041 and 1.044±0.033 for mRNA and 0.886±0.063,1.013±0.088 and 1.171±0.086 for protein, $P<0.05$ ). The Noxa expression inhibited MCF-7 cells proliferation with a time-dependent inhibition rate of (23.9%±4.2%),(36.6%±3.0%) and (47.0%±3.3%) for 24h, 48h and 72h, respectively. In Noxa overexpressed in MCF-7 cells the DNA synthesis was inhibited and arrested in G0/G1 phrase according to FCM. The percent of G0/G1 after transfected 24h, 48h and 72h was (68.1%±2.5%),(72.6%±1.5%) and (75.6%±0.9%), respectively,and apoptosis rate was (11.5%±0.9%), (19.6%±0.8%), (25.4%±0.7%),respectively. It was significantly different compared with the control group( $p<0.05$ ). Apoptosis rate after transfected 24h, 48h and 72h was (7.3%±4.1%), (16.8%±3.3%) and (23.8%±2.3%), respectively. There were significant difference between Noxa and the control group( $p<0.05$ ). Conclusion Noxa gene overexpressed was able to effectively inhibit the proliferation and promote the apoptosis of breast cancer cells.

**Key words:** Noxa gene Breast cancer Transfection Apoptosis

#### 服务

- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- E-mail Alert
- RSS

#### 作者相关文章

- 赵志
- 吴爱国
- 沈三弟

引用本文:

赵志,吴爱国,沈三弟. Noxa基因转染乳腺癌MCF-7细胞的增殖抑制和促凋亡作用[J]. 肿瘤防治研究, 2010, 37(10): 1104-1108.

ZHAO Zhi,WU Ai-guo,SHEN San-di. Noxa Gene Inhibited Proliferation and Induced Apoptosis in Human Breast Cancer Cell Line MCF-7[J]. CHINA RESEARCH ON PREVENTION AND TREATMENT, 2010, 37(10): 1104-1108.

没有本文参考文献

- [1] 纪木峰;杨华锋;吴爱国. PGRMC1参与调控乳腺癌细胞增殖及化疗敏感度的实验[J]. 肿瘤防治研究, 2012, 39(2): 123-126.
- [2] 罗平;罗浩军;杨光伦;涂刚. 新型雌激素受体GPER在乳腺癌组织中的表达及与预后的相关性 [J]. 肿瘤防治研究, 2012, 39(2): 181-184.
- [3] 王艳阳;折虹;丁喆;詹文华. Basal-like型乳腺癌临床特征与生存分析[J]. 肿瘤防治研究, 2012, 39(2): 177-180.
- [4] 刘志容;吴诚义. MMP-3、Vimentin联合检测与乳腺癌侵袭转移的关系[J]. 肿瘤防治研究, 2012, 39(2): 222-224.
- [5] 牛国晓;李洁. 半枝莲抗肿瘤机制研究进展[J]. 肿瘤防治研究, 2012, 39(2): 231-233.
- [6] 潘翠萍;范威;马彪. 乳腺癌干细胞研究进展[J]. 肿瘤防治研究, 2012, 39(2): 234-237.
- [7] 刘瑶;贺兴波;谢军;孟凡;杨建琼;黄才斌. 5-氮杂-2'-脱氧胞苷对肝癌细胞HepG2凋亡及其PEG10基因表达的影响[J]. 肿瘤防治研究, 2012, 39(1): 9-12.
- [8] 刘磊玉;赵彬佳惠;秦玮;陈媛媛;林锋;邹海峰;于晓光. 转染PDCD5基因促进顺铂诱导前列腺癌细胞的凋亡作用[J]. 肿瘤防治研究, 2012, 39(1): 32-35.
- [9] 裴新红;杨振;姜丽娜. 淋巴结分类情况下不同类型三阴性乳腺癌的预后分析 [J]. 肿瘤防治研究, 2012, 39(1): 51-53.
- [10] 黄东兰;谢菲;岑东芝;张积仁. 2001—2010年乳腺癌预后基因临床研究文献的计量学分析[J]. 肿瘤防治研究, 2012, 39(1): 91-94.
- [11] 周防震;张晓元;孙奋勇;郭勇. 二氢杨梅素对人乳腺癌细胞MDA-MB-231的体外抗增殖作用[J]. 肿瘤防治研究, 2012, 39(1): 95-97.
- [12] 周瑞娟;陈红凤. 中药影响乳腺癌细胞周期的研究进展[J]. 肿瘤防治研究, 2012, 39(1): 100-104.
- [13] 卢洁;王春美;盛光耀. FLT3靶向抑制诱导急性髓细胞白血病细胞凋亡的实验研究 [J]. 肿瘤防治研究, 2011, 38(9): 979-982.
- [14] 汪长林;赵名;于晓斌;马健;张琪. 2-氯脱氧腺苷(2-CDA)对人黑色素瘤细胞系A375生物学性质的影响[J]. 肿瘤防治研究, 2011, 38(9): 986-990.
- [15] 陈香丽;张王刚;王连才;郭建民;张茵;马肖容;田玮. IFN- $\gamma$ 对白血病细胞株FBL-3细胞生物学行为的影响 [J]. 肿瘤防治研究, 2011, 38(9): 983-985.

鄂ICP备08002248号

版权所有 © 《肿瘤防治研究》编辑部

本系统由北京玛格泰克科技发展有限公司设计开发 技术支持: support@magtech.com.cn