

## 论著

### 甲基莲心碱联合mdr 1shRNA对K562/A02细胞mdr 1/P gp表达的影响

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#### 摘要:

目的: 探讨甲基莲心碱(Nef)联合mdr 1shRNA表达的载体对K562/A02细胞mdr 1/P gp表达的影响。方法: 采用MTT方法比较Nef, mdr 1shRNA单独或二者联合对K562/A02细胞增殖的抑制作用; 采用RT PCR和Western印迹法检测mdr 1/P gp的表达。结果: Nef与mdr 1shRNA联合组对K562/A02细胞的抑制率显著高于mdr 1shRNA, Nef单独处理组(P<0.01); 联合组对K562/A02细胞mdr 1/P gp表达的抑制作用强于单独处理组(P<0.01)。结论: 甲基莲心碱能增强mdr 1shRNA表达载体对K562/A02细胞的增殖抑制作用及mdr 1/P gp表达的抑制作用, 逆转mdr 1基因编码蛋白P gp介导的多药耐药。

关键词: 甲基莲心碱 短发夹RNA 多药耐药

Effect of neferine combined with mdr 1shRNA on the expression of mdr 1/P gp in K562/A02 cell line

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#### Abstract:

Objective To determine the effect of neferine (Nef) combined with mdr 1shRNA on the expression of mdr/P gp in K562/A02 cell line. Methods MTT assay was used to observe the cell proliferation. The expression level of P gp was determined by Western blot and the transcription of mdr 1 gene was detected by semi quantitative RT PCR. Results After K562/A02 cells were treated by Nef or mdr 1shRNA alone or both for 24 h, the proliferation of K562/A02 cells was significantly higher in the Nef combined with mdr 1shRNA treatment group than that of Nef or mdr 1shRNA alone group (P<0.01). The expression of mdr 1/P gp in the Nef with mdr 1 shRNA group was significantly lower than that of Nef or mdr 1shRNA alone group. Conclusion Nef enhances the inhibition of mdr 1shRNA expression vector on K562/A02 cell proliferation and on P gp protein to effectively reverse multidrug resistance induced by mdr 1 gene encoding P gp.

Keywords: Neferine; short hairpin RNA; multidrug resistance

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## 参考文献:

[1] 黄程辉, 曹培国, 谢兆霞. MCF 7/Adr细胞mdr 1基因启动子甲基化和组蛋白乙酰化状态与多药耐药的关系 [J]. 中南大学学报:医学版, 2009, 34 (05): 369-374.

HUANG Chenghui, CAO Peiguo, XIE Zhaoxia. Relation of promoter methylation of mdr 1 gene and histone acetylation status with multidrug resistance in MCF 7/Adr cells [J]. Journal of Central South University. Medical Science, 2009, 34(05): 369-374.

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- [2] 王辉,崔泽实. 肿瘤耐药基因的研究进展 [J]. 国际病理科学与临床杂志, 2007, 27(3): 239-244.
- WANG Hui, CUI Zeshi. Research advance of multidrug resistance gene [J]. International Journal of Pathology and Clinical Medicine, 2007, 27(3): 239-244.
- [3] 肖希斌, 谢兆霞. pEGFP-C1/U6/B质粒载体介导的表达MDR1shRNA的质粒构建 [J]. 中国实验血液学杂志, 2006, 14(2): 384-387.
- XIAO Xibin, XIE Zhaoxia. Construction of pEGFP-C1/U6 mediated plasmid expressing MDR1 shRNA [J]. Journal of Experimental Hematology, 2006, 14(2): 384-387.
- [4] 林秀梅, 谢兆霞, 秦群. 甲基莲心碱、红霉素对K562/A02细胞多药耐药及机制的研究 [J]. 中华血液学杂志, 2005, 26(5): 305-307.
- LIN Xiumei, XIE Zhaoxia, QIN Qun. Study on reversal mechanism of multidrug resistance in K562/A02 cell line by neferine and erythromycin [J]. Chinese Journal of Hematology, 2005, 26(5): 305-307.
- [5] 黄程辉, 谢兆霞, 秦群, 等. 中药拮升康复方对K562/A02细胞增殖及膜流动性的影响 [J]. 湖南医科大学学报, 2003, 28(5): 477-480.
- HUANG Chenghui, XIE Zhaoxia, QIN Qun, et al. Effects of Chinese medicine compound Jiexinkang on the proliferation and membrane fluidity of K562/A02 cell [J]. Bulletin of Hunan Medical University, 2003, 28(5): 477-480.
- [6] Lee B H, Lee C O, Kwon M J, et al. Differential effects of the optical isomers of KR30031 on Cardiotoxicity and on multidrug resistance reversal activity [J]. Anticancer Drugs, 2003, 14(2): 175-181.
- [7] Sonnereld P. Multidrug resistance in haematological malignancies [J]. J Intern Med, 2000, 247(5): 521-534.
- [8] Davidson A, Dick G, Pritchard Jones K, et al. EVE/cyclosporin (etoposide, vincristine, epirubicin with high dose cyclosporin) chemotherapy selected for multidrug resistance modulation [J]. Eur J Cancer, 2002, 38(18): 2422-2427.
- [9] 罗华友, 杨家印, 刘自明, 等. 多药耐药基因反义寡核苷酸逆转肝癌细胞耐药的研究 [J]. 中华肝脏病杂志, 2004, 12(2): 85-87.
- LUO Huayou, YANG Jiayin, LIU Ziming, et al. Reversal of multidrug resistance gene MDRI and MRP of drug resistant human hepatocellular carcinoma cells SMMC-7721/ADM with antisense phosphorothioate oligonucleotides [J]. Chinese Journal of Hepatology, 2004, 12(2): 85-87.
- [10] 杨晓葵, 邢辉, 高庆蕾, 等. mdr-1特异性核酶逆转卵巢癌多药耐药 [J]. 中华肿瘤杂志, 2003, 25(5): 425-428.
- YANG Xiaokui, XING Hui, GAO Qinglei, et al. Mdr-1 ribozyme in the reversal of multidrug resistance in human ovarian cancer [J]. Chinese Journal of Oncology, 2003, 25(5): 425-428.
- [11] Paddison P J, Candy A A, Hannon G J. Stable suppression of gene expression by RNAi in mammalian cells [J]. Proc Natl Acad Sci USA, 2002, 99(3): 1443-1448.
- [12] 栾凤君, 杨纯正, 马建国, 等. 一株红白血病多药耐药细胞系(K562/A02)的建立及其耐药性的研究 [J]. 中华肿瘤学杂志, 1993, 15(2): 101-103.
- NUAN Fengjun, YANG Chunzheng, MA Jianguo, et al. Establishment of an erythroleukemia multidrug resistance cell line (K562/A02) and its drug resistance [J]. Chinese Journal of Oncology, 1993, 15(2): 101-103.
- [13] 肖希斌, 谢兆霞, 秦群. MDR1基因短发卡样RNA表达载体逆转K562/A02人白血病细胞多药耐药的研究 [J]. 中华肿瘤杂志, 2006, 28(6): 422-425.
- XIAO Xibin, XIE Zhaoxia, QIN Qun. Reversal of multidrug resistance by MDRI shRNA expression vector in human leukemia K562/A02 cells [J]. Chinese Journal of Oncology, 2006, 28(6): 422-425.

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2. 林秀梅<sup>1</sup>, 谢兆霞<sup>1,\*</sup>, 秦群<sup>2</sup>. 甲基莲心碱、红霉素对K562/A02细胞内谷胱甘肽含量的影响[J]. 中南大学学报(医学版), 2004, 29(3): 284-286
3. 黄程辉, 曹培国, 谢兆霞, 等. 不同方式加热联合甲基莲心碱对耐药乳腺癌MCF-7/Adr细胞γH2AX及mdr-1/P-gp表达的影响[J]. 中南大学学报(医学版), 2011, 36(4): 317-