吉林大学学报(医学版) 2010, 36(2) 238-241 DOI: ISSN: 1671—587X CN: 22—1342/R



基础研究

# 新型多胺缀合物NMMB逆转K562/ADM细胞多药耐药及其机制

盖晓东,程鹏飞,历春,冯凯,王超杰

1.北华大学基础医学院病理学教研室,吉林 吉林 132001；2.河南大学天然产物与药物化学研究所,河南大学天然产物与药物化学研究所,河南 开封 475004

**摘要：**

目的：研究新型多胺缀合物NMMB对白血病细胞株K562/ADM的多药耐药（MDR）逆转作用，并进一步探讨其耐药逆转机制。方法：分别以不同浓度的NMMB(10～1 000 mg/L )作用于体外培养的K562和K562/ADM细胞24 h,采用MTT 法检测细胞增殖抑制率,确定NMMB的非毒性剂量;采用非毒性剂量,NMMB 0、 2.5 、5.0 和10.0 mg/L组，分别与不同浓度ADM（0.25～100.00 mg/L）联合作用，检测各组细胞生长抑制50%的ADM浓度，即IC 50 ，计算逆转倍数；利用流式细胞术检测NMMB联合ADM作用后K562/ADM 细胞内ADM蓄积程度和细胞周期变化。结果：随着NMMB浓度的增加，细胞增殖抑制率也相应增加，呈剂量-效应关系；NMMB的最大无毒剂量为12.5 mg/L ，逆转倍数为4倍；NMMB可明显提高ADM在K562/ADM细胞内的蓄积，与未加NMMB对照组比较差异有显著性（P<0.05）；K562/ADM细胞被阻滞在G0/G1期，与未加NMMB对照组比较差异有显著性（P<0.01）。结论：NMMB对白血病耐药细胞株K562/ADM有增殖抑制和多药耐药逆转作用，其部分逆转机制可能是通过增加细胞内化疗药物蓄积和将K562/ADM细胞阻滞在G0/G1期而实现的。

**关键词：** 多胺缀合物；多药耐药；耐药逆转；K562/ADM细胞

## Effect of a novel polyamine conjugate on MDR reversal of K562/ADM cells and its mechanism

GAI Xiao-Dong, CHENG Peng-Fei, LI Chun, FENG Kai, WANG Chao-Jie

1.Department of Pathology,School of Basic Medical Sciences,Beihua University,Jilin 132013,China;2.Institute of Natural Products and Medicinal Chemistry,Henan University,Kaifeng 475004,China

Abstract:

Abstract:Objective To investigate the reversal effect of a novel polyamine conjugate,NMMB,on multidrug resistance (MDR) of myelogenous leukemia K562/ADM cells and discuss the possible correlative mechanism. Methods K562 and K562/ADM cells in culture medium were treated with NMMB (10-1 000 mg/L ) respectively.The inhibitory rates of these cells were measured by MTT assay.Non-cytotoxic dose of NMMB was determined. K562/ADM cells at logarithmic growth phase were randomly divided into ADM control,NMMB 2.5,5.0,10.0 mg/L groups.The inhibitory rate 50% (IC 50 ) and the reversal index in all groups were determined.The effects of NMMB on ADM accumulation in K562/ADM cells and cell cycle were examined by flow cytometry (FCM).Results The inhibitory rates were significantly increased when the cells were treated with different doses of NMMB (10-1 000 mg/L ) in a dose-dependent manner.The available reversal concentration of NMMB was 12.5 mg/L and the reversal index was 4 folds on K562/ADM cells.ADM accumulation in K562/ADM cells was significantly increased (P<0.05).The cells were blocked at the period of G 0/G 1 (P<0.01). Conclusion NMMB has an effect on proliferation inhibition and MDR reversal of K562/ADM cell line.The reversal mechanisms of NMMB may be due to increasing the accumulation of chemo-drugs in cells and arresting the cells at 0/G1 phase.

Keywords: polyamines conjugate;multi-drug resistance;reversal of drug resistance;K562/ADM cell

**收稿日期** 2009-09-22 **修回日期** **网络版发布日期** 2010-03-28

DOI:

**基金项目**:

**通讯作者**: 王超杰(Tel:0432-4608104,E-mail:wcjsxq@henu.edu.cn)

**作者简介**: 盖晓东(1962-),女,吉林省吉林市人|教授,医学博士,主要从事肿瘤分子病理学研究。

**作者**Email: wcjsxq@henu.edu.cn

**参考文献：**

**本刊中的类似文章**

**文章评论**

| | | | |
|---|---|---|---|
| 反馈人 | | 邮箱地址 | |
| 反馈标题 | | 验证码 | 5797 |