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# 基因RNA干扰载体的构建及其对乳腺癌细胞耐药性的影响

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**摘要：**

目的： 构建针对 CIAPIN1 基因的慢病毒siRNA表达载体并稳定转染人乳腺癌多柔比星耐药细胞MCF-7/ADM,观察该基因对乳腺癌细胞耐药性的影响。 方法： 设计合成针对 CIAPIN1 的siRNA重组质粒表达载体，并筛选出最有效的干扰序列，使用病毒包装系统进行慢病毒颗粒的包装和生产，获取ADM-CIAPIN1 RNAi稳定表达细胞株；MTT法检测 CIAPIN1 基因干扰前后细胞对于不同化疗药物IC 50 值的变化。 结果： 测序验证针对 CIAPIN1 的siRNA重组质粒构建成功，并筛选 CIAPIN1 -siRNA1为最佳干扰序列；以慢病毒为载体将干扰表达质粒稳定转染入乳腺癌细胞MCF-7/ADM后，抑制 CIAPIN1 表达水平超过88%。RNA干扰后紫杉醇、多柔比星及吉西他滨3种抗肿瘤药物对于MCF-7/ADM细胞的IC 50 值均显著下降\[( 7 12± 0.31)、(11.21±1.79)、(49.72±4.52) vs (1.13±0.06)、(4.51±0.20)、(18.30±1.27) μg/ml, P<0.01\]，说明该细胞的耐药性明显减弱。 结论： 针对 CIAPIN1 基因的慢病毒siRNA表达载体可以有效抑制MCF-7/ADM细胞中该基因的表达， CIAPIN1 基因表达下调可使乳腺癌细胞的多药耐药性发生逆转。

**关键词：**乳腺癌 CIAPIN1 基因 RNA干扰 多药耐药性 紫杉醇 多柔比星 吉西他滨

## Construction of CIAPIN1 -RNAi vector and its effect on drug resistance of breast cancer cells

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Abstract:

Objective : To construct lentiviral expressed vector of siRNA targeting CIAPIN1 and establish breast cancer cells with a stable expression of siRNA- CIAPIN1 , and to investigate the effect of CIAPIN1 on breast cancer cells multi-drug resistance. Methods: The expressed vectors of recombined plasmid of siRNA targeting CIAPIN1 were designed and synthesized. Select the most efficient interfering sequence, spackage, and produce a lentiviral vector with it. Stably transfect CIAPIN1 -RNAi into MCF-7/ADM cells. Detect IC 50 value of different drugs in MCF-7/ADM cells before and after CIAPIN1 interference by MTT. Results: The expressed vectors of recombined plasmid of siRNA targeting CIAPIN1 were successfully synthesized and the most efficient interfering sequence was CIAPIN1 -siRNA1. Stable transfection of CIAPIN1 -RNAi into MCF-7/ADM cells by a lentiviral vector suppressed the expression of CIAPIN1 in MCF-7/ADM cells more than 88%. After RNA interference, IC 50 value of MCF-7/ADM cells to anticancer drugs (paclitaxel, doxorubicin and gemcitabine) significantly decreased from (7.12±0.31), (11.21±1.79), (49.72±4.52) to (1.13±0.06), (4.51±0 20), (18 30±1 27) μg/ml respectively, suggesting a significant decrease in the drug resisstance of the cells. Conclusion: Lentiviral expressed vector of CIAPIN1 -siRNA can efficiently interfere the expression of CIAPIN1 in MCF-7/ADM cells. The study also confirmed the regulation effect of CIAPIN1 on breast cancer cell multi-drug resistance (MDR).

Keywords:breast cancer CIAPIN1 gene RNA interference multi-drug resistance (MDR) paclitaxel doxorubicin gemcitabine

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