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Zhang Jing, Ma Hu, Han Jing, et al. Role of ABCG2 in erlotinib resistance in non-small-cell lung cancer[J]. J Third Mil Med Univ, 2014, 36(10):987-991.

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## ABCG2在非小细胞肺癌厄洛替尼耐药中的作用(PDF) 分

《第三军医大学学报》 [ISSN:1000-5404/CN:51-1095/R] 卷: 36 期数: 2014年第10期 页码: 987-991 栏目: 论著 出版日期: 2014-05-30

Title: Role of ABCG2 in erlotinib resistance in non-small-cell lung cancer

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关键词: [肺癌](#); [厄洛替尼](#); [PI3K/AKT](#); [ABCG2](#)

Keywords: [lung cancer](#); [erlotinib](#); [PI3K/AKT](#); [ATP-binding cassette sub-family G member 2](#)

分类号: R434.2; R966; R979.19

文献标志码: A

摘要: 目的 探讨ABCG2在非小细胞肺癌厄洛替尼耐药中的作用。 方法 厄洛替尼不同浓度(1、5、25  $\mu\text{mol/L}$ )处理A549细胞及其获得性耐厄洛替尼细胞(A549/ER)12、24、48 h后,荧光实时定量PCR观察ABCG2 mRNA表达变化, Western blot检测p-AKT、ABCG2蛋白表达变化。PI3K/AKT通路激活剂(IGF-1)和抑制剂(LY294002)分别作用于A549细胞及A549/ER细胞24 h后, 荧光实时定量PCR和Western blot方法分别检测ABCG2 mRNA及p-AKT、ABCG2蛋白表达变化。流式细胞仪检测加入IGF-1和LY294002后ABCG2外排作用。 结果 与未加入厄洛替尼的A549、A549/ER细胞相比, 厄洛替尼(1、5、25  $\mu\text{mol/L}$ )作用12、24、48 h后, 随着剂量的增加和作用时间的延长, ABCG2的表达与p-AKT水平呈正相关。加入IGF-1 24 h后, A549细胞中ABCG2表达量升高, 而加入LY294002的A549/ER细胞, ABCG2表达量下降, 并且IGF-1作用24 h后ABCG2外排明显增高。LY294002作用24 h后A549/ER细胞ABCG2外排明显降低。 结论 ABCG2经由PI3K/AKT信号通路介导非小细胞肺癌中厄洛替尼耐药, 且阻断PI3K/AKT通路可逆转由ABCG2介导的耐药。

Abstract: Objective To determine the role of ATP-binding cassette sub-family G member 2 (ABCG2) in erlotinib resistance in non-small-cell lung cancer. Methods A549 cells and acquired erlotinib-resistant A549 cells (A549/ER) were separately treated with different concentrations of erlotinib for 12, 24 and 48 h respectively. Real-time PCR and Western blotting were used to observe the changes of ABCG2 expressions at mRNA and protein levels. The activator (IGF-1)

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and inhibitor (LY294002) of PI3K/AKT pathway were used to treat A549 cells and A549/ER cells for 24 h, respectively. The expression changes of ABCG2 mRNA and p-AKT and ABCG2 were observed by real-time PCR and Western blot analysis. The efflux effect of ABCG2 after IGF-1 and LY294002 treatment was detected by flow cytometry. Results Compared with the A549 and A549/ER cells without erlotinib treatment, after treated by erlotinib (1, 5 and 25  $\mu\text{mol/L}$ ) for 12, 24 and 48 h, the expression of ABCG2 and inhibition or activation of PI3K/AKT signaling pathway were positively correlated with the increase of dosage and treatment time. The expression level of ABCG2 was increased in A549 cells treated with IGF-1 for 24 h and decreased in A549/ER cells treated with LY294002. In addition, the efflux effect of ABCG2 was significantly increased after IGF-1 treatment for 24 h and significantly decreased after LY294002 treatment for 24 h. Conclusion ABCG2 mediates erlotinib resistance in non-small-cell lung cancer by PI3K/AKT pathway, and blocking the pathway will reverse the drug resistance.

#### 参考文献/REFERENCES:

张靖, 马虎, 韩静, 等. ABCG2在非小细胞肺癌厄洛替尼耐药中的作用[J]. 第三军医大学学报, 2014, 36(10): 987-991.

#### 相似文献/REFERENCES:

[1] 谢燕, 喻秀丽, 童立纺. 硼替佐米对A549细胞增殖及p21、p27表达的影响[J]. 第三军医大学学报, 2012, 34(17): 1775.

Xie Yan, Yu Xiuli, Tong Lifang. Anti-proliferation effect of proteasome inhibitor bortezomib in human lung adenocarcinoma A549 cells[J]. J Third Mil Med Univ, 2012, 34(10): 1775.

[2] 王孟昭, 张紫萱. 肺癌的靶向治疗[J]. 第三军医大学学报, 2012, 34(20): 2035.

Wang Mengzhao, Zhang Zixuan. Target therapy in lung cancer[J]. J Third Mil Med Univ, 2012, 34(10): 2035.

[3] 莫贵艳, 李敏, 胡成平, 等. 茶氨酸对内皮细胞生长及肺癌血管生成的影响[J]. 第三军医大学学报, 2012, 34(20): 2043.

Mo Guiyan, Li Min, Hu Chengping, et al. Theanine suppresses angiogenesis of endothelial cells in vitro and in vivo[J]. J Third Mil Med Univ, 2012, 34(10): 2043.

[4] 刘璐, 王永生, 何雅億, 等. 晚期非小细胞肺癌患者血清细胞因子IL-1B、IL-2R、IL-6及TNF- $\alpha$ 水平与厄洛替尼疗效的相关性研究[J]. 第三军医大学学报, 2012, 34(20): 2056.

Liu Lu, Wang Yongsheng, He Yayi, et al. Correlation of serum cytokine levels with erlotinib treatment outcome in patients with advanced non-small cell lung cancer[J]. J Third Mil Med Univ, 2012, 34(10): 2056.

[5] 刘晓丽, 马礼鸿, 王全义, 等. XIAP、c-jun在肺癌组织中的表达及其意义[J]. 第三军医大学学报, 2012, 34(23): 2408.

Liu Xiaoli, Ma Lihong, Wang Quanyi, et al. Expression and clinical significance of XIAP and c-jun in human lung cancer tissues[J]. J Third Mil Med Univ, 2012, 34(10): 2408.

[6] 李长毅, 张明川, 梅同华, 等. 持续小剂量化疗对A549肺癌PTEN基因和凋亡的影响[J]. 第三军医大学学报, 2007, 29(18): 1760.

Li Chang-yi, ZHANG Ming-chuan, MEI Tong-hua, et al. Low-dose metronomic chemotherapy upregulates PTEN and induces apoptosis of A549 pulmonary adenocarcinoma in athymic mice[J]. J Third Mil Med Univ, 2007, 29(10): 1760.

[7] 邓丽平, 董文, 杜艳萍, 等. 支气管肺泡灌洗液和血清肿瘤标志物联合检测在肺癌诊断中的价值[J]. 第三军医大学学报, 2008, 30(01): 78.

DENG Li-ping, DONG Wen, DU Yan-ping, et al. Combined determination of tumor markers in serum and bronchoalveolar lavage fluid for lung cancer diagnosis[J]. J Third Mil Med Univ, 2008, 30(10): 78.

[8] 李代蓉, 周清华, 郭占林, 等. CYP2E1基因多态性与肺癌遗传易感性的关系[J]. 第三军医大学学报, 2008, 30(13): 1231.

Li Dai-rong, ZHOU Qing-hua, GUO Zhan-lin, et al. Association between genetic polymorphisms of CYP2E1 and lung cancer susceptibility: a case control study[J]. J Third Mil Med Univ, 2008, 30(10): 1231.

[9] 李艳秋, 李建春, 关洪全, 等. 肺癌患者外周血Th1/Th2细胞因子及IL-18水平变化与肿瘤分期的关系[J]. 第三军医大学学报, 2007, 29(08): 731.

Li Yan-qiu, Li Jian-chun, GUAN Hong-quan, et al. Changes of IL-18 and Th1/Th2 in serum of lung cancer patients and their relationship with tumor staging[J]. J Third Mil Med Univ, 2007, 29(10): 731.

[10] 戴纪刚, 肖颖彬, 闵家新, 等. 非小细胞肺癌线粒体基因组大片段缺失突变研究[J]. 第三军医大学学报, 2006, 28(21): 2123.