

细胞外信号调节激酶1/2抑制剂对Burkitt淋巴瘤细胞增殖、凋亡和Bcl-2、Bcl-x1、caspase-3表达的影响

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Title: Effects of extracellular-signal regulated kinase 1/2 inhibitors on proliferation,apoptosis and expression of Bcl-2,Bcl-x1 and caspase-3 in Burkitt lymphoma cells

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摘要: 目的: 分析细胞外信号调节激酶1/2抑制剂对Burkitt淋巴瘤细胞存活率、细胞凋亡和Bcl-2、Bcl-x1、caspase-3表达的影响。方法: 通过不同浓度的细胞外信号调节激酶1/2抑制剂AZD8330对Raji细胞进行处理, 通过CCK-8对其细胞存活率进行测定, 采用流式细胞术对其细胞凋亡的情况进行检测。通过Western blot法对Bcl-2、Bcl-x1、caspase-3蛋白表达进行测定, 且通过RT-PCR法对Bcl-2、Bcl-x1、caspase-3 mRNA的表达进行测定。结果: 经0.50、1.00、5.00、50.00、100.00 $\mu\text{mol/L}$ 的AZD8330处理1、2、3 d后, 随着AZD8330作用时间的增加与浓度的提高, Raji细胞存活率逐渐下降, 并且各时间点的细胞存活率均低于对照组 ($P < 0.05$)。分别经0.50、1.00、5.00、50.00、100.00 $\mu\text{mol/L}$ 的AZD8330处理1、2、3 d后, Raji细胞出现凋亡, 并且随着AZD8330作用时间的增加与浓度的提高, 其凋亡率明显升高, 且各时间点的细胞凋亡率均高于对照组 ($P < 0.05$)。随着处理时间的增加与浓度的提高, Bcl-2、Bcl-x1蛋白表达显著减少, caspase-3蛋白表达明显提高 ($P < 0.05$); 并且, Bcl-2、Bcl-x1 mRNA表达明显减少, caspase-3 mRNA的表达明显提高 ($P < 0.05$)。结论: AZD8330可能利用阻滞细胞外信号调节激酶1/2通路相关基因及蛋白的表达对Burkitt淋巴瘤Raji细胞凋亡进行诱导, 并对其细胞增殖进行阻滞。

Abstract: Objective: To investigate the effects of extracellular-signal regulated kinase 1/2 inhibitors on survival rate, apoptosis and expression of Bcl-2, Bcl-x1 and caspase-3 in Burkitt lymphoma cells. Methods: The different concentrations of extracellular-signal regulated kinase 1/2 inhibitor for AZD8330 were used on Raji cells. Survival rate of cells was measured by CCK-8. Apoptosis of cells was detected by flow cytometry. The expressions of Bcl-2, Bcl-x1 and caspase-3 protein were measured by Western blot, and the expressions of Bcl-2, Bcl-x1 and caspase-3 mRNA were measured by RT-PCR. Results: After 0.50, 1.00, 5.00, 50.00, 100.00 $\mu\text{mol/L}$ of AZD8330 for 1, 2, 3 days, with the concentration and action time of AZD8330 increased, the survival rate of Raji cells decreased gradually, and each time point of the cell survival rate was lower than those in the control group (all $P < 0.05$). After 0.50, 1.00, 5.00, 50.00, 100.00 $\mu\text{mol/L}$ of AZD8330 for 1, 2, 3 days, Raji cell showed apoptosis, and with the concentration and action time of AZD8330 increased, the apoptosis rate were significantly increased, and the cell apoptosis rate at different times was higher than those in the control group (all $P < 0.05$). With the concentration and treatment time increased, the expression of Bcl-2 and Bcl-x1 protein were significantly decreased, while the expression of caspase-3 protein increased significantly (all $P < 0.05$), and Bcl-2, Bcl-x1 mRNA expression decreased, caspase-3 mRNA expression increased significantly (all $P < 0.05$). Conclusion: AZD8330 may induce the apoptosis of Burkitt lymphoma Raji cells by blocking extracellular-signal regulated kinase 1/2 pathway related genes and protein expression, and block their cell proliferation.

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