低表达DJ-1调控PI3K/AKT通路对肺癌细胞增殖、凋亡的影响

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Title: **Effects of low expression of DJ-1 on proliferation and apoptosis of lung cancer cells by regulating PI3K/AKT pathway**

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关键词: 肺癌; DJ-1; 细胞增殖; 细胞凋亡; PI3K/AKT

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摘要: 目的:探讨低表达DJ-1对肺癌细胞增殖凋亡及PI3K/AKT通路的影响。方法:采用Western blot检测肺癌细胞系中DJ-1蛋白的表达；以脂质体法转染干扰SK-MES-1细胞中DJ-1蛋白的表达后，MTT法检测细胞的增殖变化，流式细胞仪检测细胞的凋亡情况，Western blot检测细胞中p-AKT和AKT蛋白的表达水平；将PI3K/AKT通路抑制剂LY294002处理SK-MES-1细胞48 h后，MTT法和流式细胞仪分别检测细胞的增殖和凋亡情况，Western blot检测细胞中p-AKT和AKT蛋白的表达。结果:与正常肺上皮BEAS-2B细胞相比，肺腺癌A549细胞和肺鳞癌SK-MES-1细胞中DJ-1蛋白的相对表达量均显著升高，且SK-MES-1细胞中DJ-1蛋白的表达量高于A549细胞，差异均有统计学意义（$P<0.05$）。转染后siRNA DJ-1组细胞中DJ-1蛋白的表达量明显低于对照组（$P<0.05$）；与对照组相比，转染24 h后siRNA DJ-1组细胞的吸光值（OD值）变化不显著（$P>0.05$），而转染48 h和72 h后细胞的OD值明显降低（$P<0.05$）；转染48 h后，与对照组相比，siRNA DJ-1组细胞的凋亡率显著升高（$P<0.05$），p-AKT/AKT值显著降低（$P<0.05$）。SK-MES-1细胞经抑制剂LY294002处理48 h后，细胞的增殖凋亡趋势与下调DJ-1表达的结果相一致。结论:DJ-1在肺癌细胞中高表达，下调其表达能够抑制细胞增殖，促进细胞凋亡，其作用机制可能与PI3K/AKT信号通路有关。

Abstract: Objective:To investigate the effects of low expression of DJ-1 on proliferation,apoptosis and PI3K/AKT pathway in lung cancer cells.Methods:The expression of DJ-1 protein in lung cancer cell lines was detected by Western and blot.The expression of DJ-1 protein was interfered by liposome transfection in SK-MES-1 cells,and MTT method was used to detect the proliferation of cells,and the apoptosis of cells was detected by flow cytometry,and the expression levels of p-AKT and AKT proteins in cells were detected by Western and blot.The PI3K/AKT pathway inhibitor LY294002 was treated with SK-MES-1 cells 48 h later.The proliferation and apoptosis of the cells were detected by MTT and flow cytometry,and the expression of p-AKT and AKT proteins in the cells was detected by Western and blot.Results:Compared with normal lung epithelial BEAS-2B cells,the relative expression of DJ-1 protein in lung adenocarcinoma A549 cells and lung squamous cell carcinoma SK-MES-1 cells was significantly increased,and the relative expression of DJ-1 protein in SK-MES-1 cells was higher than that in A549 cells,which difference was statistically significant ($P<0.05$).Compared with the control group,the absorbance value (OD) cells in siRNA DJ-1 group did not change significantly after transfection 24 h($P>0.05$),but the cell OD value was decreased significantly after transfection 48 h and 72 h ($P<0.05$).After

transfection 48 h,the apoptotic rate of cells in siRNA DJ-1 group was increased significantly (P < 0.05) and the p-AKT/AKT value was decreased significantly compared with the control group (P < 0.05).Treated with LY294002 inhibitor after 48 h,proliferation and apoptosis of SK-MES-1 cells were consistent with the downregulation of DJ-1 expression.Conclusion:DJ-1 was highly expressed in lung cancer cells,and low expression of DJ-1 can inhibit cell proliferation and promote apoptosis,which mechanism may be related to PI3K/AKT signaling pathway.

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