

论著

人耐药肺腺癌A549/DDP细胞株的差异蛋白质组学

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摘要:

目的: 建立A549与A549/DDP两组细胞株的双向凝胶电泳图谱, 识别并鉴定其差异表达的蛋白质, 筛选肺腺癌耐药相关蛋白质。方法: 收集A549与A549/DDP两组细胞株的总蛋白质, 应用二维凝胶电泳(two-dimensional gel electrophoresis, 2-DE)进行分离应用, 图像分析识别差异表达的蛋白质点, 采用基质辅助激光解吸电离飞行时间质谱鉴定差异蛋白质点。使用Western免疫印迹对其中4个蛋白质进行验证。结果: 建立了A549与A549/DDP细胞蛋白质的2-DE图谱, 识别了40个差异表达的蛋白质点, 鉴定了23个差异表达蛋白质。Western免疫印迹证实了差异蛋白质热休克蛋白 β 1, 膜联蛋白A4, 丝切蛋白I和波形蛋白在A549与A549/DDP细胞中的差异表达水平。结论: 23个差异表达蛋白质为研究肺腺癌耐药机制提供了实验依据。

关键词: 肺腺癌 二维凝胶电泳 蛋白质组学 免疫印迹

Differential proteomic analysis of drug resistant A549/DDP cell lines in human lung adenocarcinoma

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Abstract:

Objective To establish 2-dimensional electrophoresis (2-DE) graph of A549 and A549/DDP cell lines, to identify the differentially expressed proteins, and to screen multidrug resistance (MDR) related proteins in human lung adenocarcinoma. Methods The total proteins of A549 and A549/DDP cells were obtained, and were extracted and separated by 2-DE. PDQuest software was applied to analyze the 2-DE images, and the differential proteins of the 2 types of cells were identified by matrix-assisted laser desorption/ionization time of flight mass spectrometry (MALDI-TOF-MS). Western blot was used to determine the expression levels of the 4 proteins. Results We established 2-DE maps of total proteins from A549 and A549/DDP. A total of 40 differential protein spots in the 2 cell lines were found, and 23 differential expression proteins were identified by MALDI-TOF-MS. Western blot showed that heat shock protein beta-1, annexin A4, cofilin I, vimentin were differential expression proteins in A549 and A549/DDP, which was consistent with the results of the comparative proteomic analysis. Conclusion The 23 differential expression proteins in human lung adenocarcinoma are useful for studying the MDR mechanism of lung adenocarcinoma.

Keywords: lung adenocarcinoma; 2-dimensional gel electrophoresis; proteomics; Western blot

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