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肺腺癌A_{549}/DDP细胞周期变化及其多药耐药性

Change of Cell Cycle and Resistance of A_{549} Cells to Cisplatin

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英文关键词：multidrug resistance　intracellular free Ca^{2+}　cell cycle　lung adenocarcinoma cancer A_{549} cells

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中文摘要：

用Fura-2/AM标记药物敏感的肺腺癌细胞A_{549}和抗顺铂药物的肺腺癌细胞A_{549}/DDP两种细胞胞内游离Ca^{2+}，用碘化丙锭(PI)标记细胞DNA，检测其胞内Ca^{2+}的变化及两种细胞增殖能力和细胞周期.实验结果表明，抗药性细胞株A_{549}/DDP胞浆内游离Ca^{2+}的浓度仅为药物敏感细胞株A_{549}的1/3左右，同时前者的细胞增殖能力较后者明显增强，而且细胞周期也明显缩短.当用BAPTA-AM和EGTA或A_{23187}和Thapsigargin处理细胞以降低或升高其胞内自由Ca^{2+}浓度时可改变细胞的生长周期，二者也呈现明显差别.这些结果表明，对顺铂产生耐药性的人肺腺癌A_{549}/DDP细胞胞内Ca^{2+}浓度的降低，可能影响细胞的增殖，缩短细胞的生长周期，特别是影响起决定作用的G1期，从而有利于肿瘤细胞多药耐药特性的维持.

英文摘要：

The change of intracellular free Ca^{2+} in A_{549} cells sensitive and A_{549}/DDP cells resistant to the *cis*-dichlorodiammine platinum (cisplatin) were measured by Fura-2/AM, the proliferation ability and cell cycle were measured by propidium iodide(PI) labeling cellular nuclear DNA. The results indicated that the concentration of intracellular free calcium of the sensitive A_{549} cells was 2 times higher than that of the resistant A_{549}/DDP cells; the proliferation ability of the latter increased significantly than that of the former, the cell cycle also shortened. The proliferation ability and cell cycle of the two cell lines also clearly showed difference by decreasing or increasing their intracellular free calcium concentration if the cells were treated with BAPTA-AM or EGTA and A_{23187} or Thapsigargin. All of the results demonstrated that the concentration decrease of intracellular free calcium in the A_{549}/DDP cells resistant to cisplatin may affect the cellular proliferation, shorten the cellular cycle, which would be helpful to remain the multidrug resistance characteristics of A_{549}/DDP cells by specially modulating the cellular decisive G1 of cell cycle.

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