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多肽A28增强顺铂对结肠癌细胞株HCT-116的杀伤作用 点此下载全文

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摘要：

目的：探讨计算机辅助药物设计合成研发的特异性多肽A28增强顺铂对结肠癌细胞的杀伤效应。方法：以结肠癌细胞HCT 116和人脐静脉内皮细胞（human umbilical vein endothelial cells, HUVEC）为实验对象，设定A28浓度为20 μmol/L ，顺铂的浓度为10、30及90 μmol/L。MTT法检测A28联合顺铂对HCT 116细胞和HUVEC细胞生长的影响，流式细胞术检测A28联合顺铂对HCT 116细胞凋亡的影响。结果：顺铂浓度依赖性地抑制HCT 116细胞的增殖，A28显著增强顺铂对HCT 116细胞增殖的抑制及致凋亡作用。A28联合10 μmol/L顺铂对HCT 116细胞增殖的抑制率为(43.3±0.03)%，显著高于单用顺铂组的（15.6±0.10)% (P <0.01)；进一步提高联合用药的顺铂浓度（30、90 μmol/L）时，对HCT 116细胞增殖抑制率与10 μmol/L顺铂时没有显著差别(P >0.05)。A28联合1.1、3.3、10、30或90 μmol/L顺铂时，HCT 116细胞的凋亡率\[(6.0±0.07)%、(14.5±0.03)%、(34.7±0.07)%、(37.3±0.08)%、(40.6±0.02)%\]高于单用顺铂组\[(5.1±0.06)%、(8.3±0.02)%、(14.6±0.08)%、(19.8±0.07)%、(32.6±0.02)%\]（ P <0.01）。10 μmol/L顺铂联合20 μmol/LA28可以有效杀伤HCT 116细胞，且对HUVEC的毒性作用较小。结论：多肽A28可提高顺铂对结肠癌细胞株HCT 116的杀伤效果，减轻对正常HUVEC的毒性作用。

关键词：结肠癌 顺铂 多肽 计算机辅助药物设计

Polypeptide A28 enhances cytotoxic effect of cisplatin on colon cancer cell line HCT 116 Download Fulltext

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Abstract:

Objective:To study the effect of polypeptide A28, which was designed by computer aided drug designing system, on the cytotoxic effect of cisplatin against colon cancer cells. Methods: Colon cancer cell line HCT 116 and human umbilical vein endothelial cells (HUVEC) were used in the present study. The concentration of polypeptide A28 was 20 μmol /L and those of cisplatin were 10, 30 and 90 μmol/L. The effects of polypeptide A28 combined with cisplatin on the growth of HCT 116 and HUVEC cells were measured by MTT; their effects on the apoptosis of HCT 116 cells were examined by flow cytometry. Results：Cisplatin dose dependently inhibited proliferation of HCT 116 cells; A28 further enhanced the inhibitory effect of cisplatin on HCT 116 cells and increased apoptosis induction effect of cisplatin on HCT 116 cells, with the growth inhibition rate of the combination group being (43.3±0.03)%, which was significantly higher than that of the cisplatin single group (15.6±0.10)% (P <0.01). In combination group, when cisplatin concentrations (30, 90 μmol/L) were increased, the inhibitory effects on HCT 116 cells were not increased compared with the 10 μmol/L cisplatin combination group (P >0.05). A28 combined with cisplatin (1.1, 3.3, 10, 30, or 90 μmol/L) induced apoptosis of more HCT 116 cells than cisplatin single group did (P <0.01). Csplatin at 10 μmol/L combined with A28 at 20 μmol/L effectively killed HCT 116 cells, whereas with less toxic effect on HUVEC cells. Conclusion：Polypeptide A28 can enhance the cytotoxic effect of cisplatin on colon cancer cell line HCT 116 and decrease its lethal effect on HUVEC .

Keywords:colon cancer cisplatin polypeptide computer aided drug design

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