

论著

hTERT基因反义核酸对化疗药物诱导CEM细胞凋亡的影响

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摘要 目的: 利用人类端粒酶逆转录酶(hTERT)基因的反义寡核苷酸(ASODN)抑制人T淋巴细胞白血病细胞株(CEM)端粒酶活性后, 探讨化疗药物(顺铂、柔红霉素、长春新碱、足叶乙甙)对CEM细胞凋亡的影响。方法: 采用台盼蓝拒染法观察hTERT ASODN与化疗药物(顺铂、柔红霉素、长春新碱、足叶乙甙)联合作用对CEM细胞生长的影响; 姬姆萨染色法观察凋亡细胞的形态变化; 通过流式细胞仪对细胞凋亡峰进行定量分析。结果: hTERT ASODN作用于CEM细胞24 h再加入柔红霉素、长春新碱、足叶乙甙, 对细胞生长的抑制分别与单用柔红霉素、长春新碱、足叶乙甙及hTERT正义寡核苷酸(SODN)联合柔红霉素、长春新碱、足叶乙甙组相比, 统计学上无显著差异($P > 0.05$)。hTERT反义核酸作用于CEM细胞24 h加入顺铂, 再共同作用48 h, CEM活细胞均数为 2.318×10^8 cells/L, 与单用顺铂组(3.250×10^8 cells/L)及hTERT正义核酸联用顺铂组(3.175×10^8 cells/L)相比, 对细胞抑制明显增强($P < 0.05$)。hTERT ASODN作用于CEM细胞24 h再加入顺铂作用48 h, 细胞出现典型的凋亡形态学改变。hTERT ASODN与 $2.5 \mu\text{mol/L}$ 顺铂联合作用于CEM细胞48 h的凋亡细胞百分率(19.47%)分别同SODN与顺铂联合作用组(6.97%)、单用顺铂作用组(6.02%)进行比较有显著差异($P < 0.01$)。结论: hTERT基因反义寡核苷酸能促进顺铂诱导CEM细胞凋亡。

关键词 [基因,hTERT](#); [寡核苷酸类,反义](#); [端粒,末端转移酶](#); [顺铂](#); [CEM细胞](#); [细胞凋亡](#)

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Effect of hTERT gene antisense oligodeoxynucleotide on chemotherapeutic drugs-induced apoptosis in CEM cells

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Abstract

AIM: To explore the effect of human telomerase reverse transcriptase (hTERT) gene antisense oligodeoxynucleotide (ASODN) on chemotherapeutic drugs-induced apoptosis in CEM cells. METHODS: Cell viability was determined by trypan blue dye exclusion assay. Apoptosis was detected by morphological observation and flow cytometric cell cycle analysis. RESULTS: The survival rates of CEM cells cultured with daunorubicin, vincristin and etoposide respectively were similar with that cultured with those chemotherapeutic drugs plus hTERT ASODN. The survival rates of CEM cells cultured with cis-diamminedichloroplatinum (DDP) added 24 h later were higher than that cultured with hTERT ASODN and DDP added 24 h later. The survival rates of CEM cells cultured with DDP were similar with that cultured with hTERT SOND and DDP. In morphological observation of apoptotic cells using Giemsa staining, cells treated with DDP or DDP combined with hTERT ASODN or SODN at 48 h, displayed classic apoptotic changes. Apoptosis rates of CEM cells treated with DDP for 48 h after 24 h of exposure to ASODN significantly increased. There was significant difference in the percentage of apoptotic cells of CEM cells between hTERT ASODN plus DDP and SODN plus DDP or DDP alone, respectively. CONCLUSION: hTERT ASODN enhances DDP-induced apoptosis of CEM cells.

Key words [Genes](#) [hTERT](#) [Oligonucleotides](#) [antisense](#) [Telomerase](#) [Cisplatin](#) [CEM cells](#) [Apoptosis](#)

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