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论著

# RNA干扰HBx基因对肝癌细胞化疗效果的影响

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摘要

目的：探讨RNA干扰技术和传统的化疗方法联合应用对肝癌细胞生长抑制作用的影响，并选择高效的治疗组合，研究其凋亡机制。方法：鉴定3组肝癌细胞——MHCC97-H(原肝癌细胞株)，HK3细胞（转染空质粒的MHCC97-H细胞）和21543细胞（转染含HBx-shRNA质粒的MHCC97-H细胞）；RT-PCR检测RNA干扰对HBx mRNA沉寂作用,CCK8和TUNEL分别检测RNA干扰HBx后化疗药物对MHCC97-H肿瘤细胞生长的抑制及诱导细胞凋亡情况。结果：RT-PCR结果显示,与MHCC97-H细胞组比较，21543细胞的HBx mRNA水平下降约91%，HK3细胞HBx mRNA水平下降不明显；RNA靶向干扰HBx基因后的肝癌细胞（21543细胞）较原肝癌细胞（MHCC97-H细胞）和HK3细胞增殖明显减慢，而后两种细胞差别无统计学意义；3种不同细胞加用3种不同浓度的氟尿嘧啶(0~120 mg/L)、顺铂(0~32 mg/L)后细胞生长明显减慢并呈浓度依赖性，以RNA靶向干扰HBx基因后的21543细胞生长抑制最明显;相同浓度的氟尿嘧啶对3组不同肝癌细胞均可引起细胞凋亡，以21543细胞凋亡最明显。结论：RNA干扰HBx可明显抑制肝癌细胞的增殖,并增加肝癌细胞对化疗药物的敏感性；RNA干扰HBx基因和化疗药物联合应用使肝癌细胞凋亡更明显，细胞增殖速度明显减慢。

关键词 肝癌细胞；RNA干扰；HBx基因；凋亡；细胞周期；化疗

分类号



# Effect of HBx gene RNA interference combined with chemotherapy on hepatocellular carcinoma cells

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Abstract

ObjectiveTo determine the influence of HBx gene RNA interference combined with chemotherapy on stable hepatocellular carcinoma cells growth and its apoptosis mechanism.MethodsStable hepatocellular carcinoma cells transfected by shRNA aiming at HBx together with independent control series (MHCC97-H,HK3, and 21543) were identified. The extent of HBx gene by RNA interference was detected by RT-PCR. The influence of cell growth through RNA interference was observed with cell counting kit-8 (CCK8), the diversity of cell cycle by flow cytometry and cell apoptosis were detected by TUNEL apoptosis detection kit.ResultsRT-PCR demonstrated that the HBx mRNA level of 21543 cell down regulation was 91%. The HBx mRNA level of HK3 cells was not different from MHCC97-H cell. The growth of 21543 cells was obviously slower than MHCC97-H cells and HK3 cells, with no significant difference. The cell cycle of 21543 cells showed that hepatocellular carcinoma cells through RNA interference targeting at HBx delayed in go to S stage, and the proliferation activity degraded obviously. The 3 kinds of cells adding different concentrations of flurouracil and cisplatin grew slowlier than the origin cells. The growth inhibition was dependent on the concentration of drug with growth inhibition of 21543 cells the most obvious.That of the 3 kinds of cells adding α-interferon was not obvious.Flurouracil induced apoptosis in all cells. Apoptosis in 21543 cells was the most obvious.ConclusionRNA interference targeting at HBx can suppress the growth of hepatocellular carcinoma cells. Hepatocellular carcinoma cells through RNA interference targeting at HBx can intensify chemo-sensitivity. Combination of RNA interference targeting at HBx with chemotherapeutics can induce apoptosis in more hepatocellular carcinoma cells and cell proliferation steps down accordingly.

Key words hepatocellular carcinoma cell RNA interference HBx gene apoptosis cell cycle chemotherapy

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