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论著

PAR-2激动剂对肝癌细胞增殖及Ca2+水平的影响

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摘要 目的： 研究PAR-2激动剂对人肝癌HepG2细胞增殖及细胞内Ca2+浓度（［Ca2+］c）的影响。方法: 培养人肝癌细胞HepG2, 分别利用PAR-2激动剂SLIGKV-NH2及反PAR-2激动肽VKGILS-NH2干预肝癌细胞生长，用Fura-2荧光法测定肝癌细胞内［Ca2+］c，用MTT法检测对肝癌细胞增殖能力的影响，流式细胞术（FCM）检测细胞周期改变情况，RT-PCR法检测cyclinD1 mRNA表达变化。结果: 50 μmol/L SLIGKV-NH2刺激HepG2细胞后，［Ca2+］c迅速短暂升高（P<0.01）；G0/G1期比例明显降低，S期和G2/M期细胞比例和细胞增殖指数(PI)明显提高（P<0.01）；cyclinD1 mRNA的表达显著增加（P<0.01）。SLIGKV-NH2在1-50 μmol/L时可以促进HepG2细胞增殖，呈剂量依赖性（P<0.01或P<0.05）。而VKGILS-NH2组与对照组相比差异无显著（P>0.05）。结论: PAR-2激动剂在体外能通过激活PAR-2，诱导HepG2细胞内［Ca2+］c升高，上调cyclinD1 mRNA的表达，加速HepG2细胞周期进程，促进DNA合成，促进肝癌细胞增殖。

关键词 蛋白酶激活受体-2 HepG2细胞 细胞增殖 钙

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Effects of PAR-2 agonist peptide on proliferation and cytosolic calcium level in hepatoma cells

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Abstract

<FONT face=Verdana>AIM: To investigate the effects of PAR-2 agonist peptide on the proliferation and cytosolic calcium concentration (［Ca2+］c) in human hepatoma cells HepG2. METHODS: Human hepatoma cell line HepG2 was cultured. The cells were treated with PAR-2 agonist peptide SLIGKV-NH2 and the reverse PAR-2 agonist peptide VKGILS-NH2, respectively. The ［Ca2+］c of hepatoma cells were measured by microfluorimetric techniques based on calcium indicator fura-2/AM. The influences on proliferation of hepatoma cells were determined by MTT method. The changes of cell cycle were evaluated by flow cytometry, and the changes of cyclin D1 mRNA expression were detected by RT-PCR. RESULTS: After treated with 50 μmol/L SLIGKV-NH2, a rapid rise of ［Ca2+］c in HepG2 cells was induced (P<0.01), percent S phase, G2/M phase and proliferation index (PI) of HepG2 cells were elevated (P<0.01), and cyclin D1 mRNA expression was significantly upregulated (P<0.01). The proliferation rates of HepG2 cells treated with 1-50 μmol/L SLIGKV-NH2 were significantly increased, and the effect was in a dose-dependent manner (P<0.01 or P<0.05). No statistical significance of the difference between VKGILS-NH2 and control group was observed (P>0.05). CONCLUSION: PAR-2 agonist peptide induces the rise of ［Ca2+］c in HepG2 cells, upregulates the expression of cyclin D1 mRNA, accelerates the progress of cell cycle, promotes the synthesis of DNA and the proliferation of hepatoma cells via activating PAR-2 in vitro.</FONT>

Key words Protease activated receptor-2 HepG2 cells Cell proliferation Calcium

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