

利用FRET技术在活细胞内研究红景天甙对A β 25-35诱导PC12细胞凋亡的抑制作用

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为研究红景天甙(Salidroside)对 β 淀粉样肽25-35(β amyloid peptide25-35, A β 25-35)诱导PC12细胞凋亡的抑制作用,本文采用Cell Counting Kit-8(CCK-8)分析细胞的存活率,通过光镜检测细胞形态以及Hoechst染色检测细胞核固缩,利用荧光共振能量转移(Fluorescence Resonance Energy Transfer, FRET)技术在单个活细胞中检测caspase-3和caspase-8活性的动态变化。结果表明,红景天甙剂量依赖性抑制A β 25-35引起的细胞凋亡,提高细胞的存活率;红景天甙对caspase-3的活性有明显的抑制作用,而且A β 25-35诱导细胞凋亡不依赖caspase-8的激活。这些结果提示抑制caspase-3的活性是红景天甙抑制A β 25-35诱导PC12细胞凋亡的机制之一。

INHIBITIONS OF SALIDROSIDE ON THE A β 25-35-INDUCED APOPTOSIS BY FRET IN LIVING PC12 CELLS

To investigate the inhibitions of salidroside on the apoptosis induced by A β 25-35 in PC12 cells, cell survival was analyzed with Cell Counting Kit-8(CCK-8), cell morphology was observed by optical microscope, nuclear condensation was shown by Hoechst staining, the dynamics of caspase-3 and caspase-8 activation in single living cell were monitored by Fluorescence Resonance Energy Transfer(FRET) respectively. The results showed that salidroside elevated the cell survival by inhibiting the A β 25-35-induced apoptosis in a dose-dependent manner, and that salidroside greatly inhibited the caspase-3 activation. Furthermore, the apoptosis induced by A β 25-35 was independent of the caspase-8 activation. In conclusion, these data indicate that salidroside can protect the PC12 cells from A β 25-35-induced apoptosis by inhibiting the activation of caspase-3.

关键词

红景天甙(Salidroside); PC12细胞(PC12 cells); 细胞凋亡(apoptosis); A β 25-35; 荧光共振能量转移(FRET)(Fluorescence Resonance Energy Transfer(FRET))