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论著

JNK信号传导通路在赭曲毒素A体外诱导人肾小管上皮细胞凋亡中的作用

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摘要 目的 探讨赭曲毒素A（OA）诱导人肾小管上皮细胞(HKC)凋亡的作用机制。方法 体外培养HKC，随机分为空白对照组、溶剂(0.04%乙醇)对照组、OA 1 μmol·L^{-1}处理组及c-Jun氨基端激酶（JNK）阻断剂SP600125 0.5 μmol·L^{-1}预处理+OA组。细胞处理24 h后，分别采用流式细胞仪检测细胞的凋亡率，免疫细胞化学染色和Western蛋白印迹法检测凋亡相关蛋白天冬氨酸半胱氨酸蛋白酶（caspase）3蛋白的表达以及JNK的磷酸化水平（p-JNK）。结果 OA组细胞凋亡率明显高于溶剂对照组〔（4.24±0.17）% vs （1.06±0.14）%〕，SP600125预处理+OA组HKC凋亡率〔（2.44±0.38）%〕明显低于OA组。OA组caspase 3蛋白的表达和p-JNK水平明显升高，SP600125预处理+OA组caspase 3蛋白的表达和p-JNK水平较OA组明显降低。结论 OA可能通过激活JNK，上调caspase 3蛋白的表达而诱导HKC凋亡。

关键词 赭曲毒素A c-Jun氨基端激酶 细胞凋亡 信号传导 丝裂原激活蛋白激酶类 细胞, 培养的

分类号 R99

Role of JNK signal transduction pathway on apoptosis of human kidney tubular epithelial cells induced by ochratoxin A *in vitro*

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Abstract

AIM To explore the role of c-Jun NH_2 terminal kinase (JNK) singnal transduction pathway on ochratoxin A (OA) inducing apoptosis of human kidney tubular epithelial cells (HKC) *in vitro*. **METHODS** HKC were incubated with saline, solvent (0.04% ethanol), 1 μmol·L^{-1} OA and JNK inhibitor SP600125 (0.5 μmol·L^{-1})+OA, respectively, for 24 h. The apoptosis rate, the expression of caspase 3 and level of p-JNK of HKC were detected by flow cytometry, immunocytochemical staining and Western blot, respectively. **RESULTS** After OA treatment, the apoptosis rate was higher than that in solvent group〔（4.24±0.17）% *vs* （1.06±0.14）%〕. Pretreatment with SP600125 for 30 min decreased the apoptosis rate 〔（2.44±0.38）%〕. The expressions of caspase 3 and level of p-JNK in OA group were higher than that in solvent group, while both were lower in SP600125+OA group than that in OA group. **CONCLUSION** The possible mechanism of apoptosis of HKC after OA treatment may be related with the activation of JNK and increasing the expression of caspase 3.

Key words ochratoxin A c-Jun NH2 terminal kinase apoptosis signal transduction mitogen-activated protein kinases cells cultured

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