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论著

p38 MAPK在周期性机械牵张诱导肺泡巨噬细胞表达HMGB1中的作用

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摘要 目的： 研究p38 MAPK在周期性机械牵张诱导肺泡巨噬细胞(AM)表达高迁移率族蛋白B1(HMGB1)中的作用。方法：大鼠AM随机分为A、B、C 3组，A组为对照组；B组细胞施加20%牵张应变，牵张时间为4 h；C组细胞的牵张模式与B组相同，在牵张前用p38 MAPK特异性抑制剂SB203580(40 μmol/L)预处理2 h。利用RT-PCR法检测HMGB1 mRNA的表达，Western blotting检测HMGB1蛋白表达和p38 MAPK的活性。结果：与对照组相比，AM施加20%牵张应变可诱导HMGB1蛋白和mRNA表达明显增加、p38 MAPK活性明显增高(均P<0.05)，SB203580可显著抑制牵张应变的这种诱导作用(均P<0.05)。结论：周期性机械牵张可能通过p38 MAPK信号通路，调节肺泡巨噬细胞HMGB1 mRNA和蛋白的表达。

关键词 机械牵张； 高迁移率族蛋白质1； p38 MAP激酶； 肺泡巨噬细胞

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Role of p38 MAPK in cyclic mechanical stretch induced HMGB1 expression in alveolar macrophages

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Abstract

<FONT face=Verdana>AIM: To investigate the role of p38 mitogen-activated protein kinase (MAPK) in cyclic mechanical stretch induced the expression of high mobility group box 1 protein (HMGB1) in alveolar macrophages (AMs). METHODS: AMs were cultured and seeded at 1×108 cells/L in 6-well Bioflex cell culture plates. Subsequently, the cells were exposed to cyclic mechanical stretch at 20% (group B) elongation using Flexercell 4000T cell stretching unit. In group C, cells were pre-treated with SB203580 (40 μmol/L) for 2 h before mechanical stretch. Group A served as control. The expression of HMGB1 mRNA in alveolar macrophages was detected by RT-PCR. p38 MAPK activity and the expression of HMGB1 protein were measured by Western blotting analysis. RESULTS: The expression of HMGB1 mRNA and protein, and the activity of p38 MAPK in AMs were significantly increased in group B than those in group A (P<0.05). SB203580, an inhibitor of p38 MAPK, significantly inhibited the inducing effect of mechanical stretch (P<0.05). CONCLUSION: Mechanical stretch regulates the expression of HMGB1 mRNA and protein in alveolar macrophages by activating p38 MAPK signal pathway.</FONT>

Key words Mechanical stretch High mobility group protein 1 p38 MAP kinase Alveolar macrophages

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