

论著

p38在机械张应力诱导皮肤成纤维细胞运动中的作用

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摘要:

[摘要] 目的: 观察p38在周期性张应力诱导皮肤成纤维细胞运动中的作用, 探讨机械张应力诱导成纤维细胞运动的信号转导机制。方法: 将成纤维细胞培养于预敷胶原蛋白基质的6孔柔性培养板, 对柔性培养孔施加10次/min的负压(-135 mmHg)。以倒置显微镜观察细胞旋转角度以及p38抑制剂SB203580处理后的细胞运动, 免疫印迹观察细胞内p38磷酸化。结果: 机械张应力刺激成纤维细胞4 h后, 80%的细胞垂直于张应力方向旋转60°~90°。张应力刺激5 min后, 细胞内p38磷酸化达到峰值, p38抑制剂SB203580部分抑制成纤维细胞运动。结论: 机械张应力通过诱导p38磷酸化调控皮肤成纤维细胞运动。

关键词: 周期性张应力 细胞运动 p38

Role of p38 in cyclic strain induced fibroblast orientation

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Abstract:

Objective To assess the role of p38 in fibroblast orientation and to explore the cell signal transduction mechanism of cyclic strain induced cell orientation. Methods Fibroblasts were seeded onto collagen coated flexible membranes. Membranes were then deformed at 10 cycles per minute under 135 mmHg subatmospheric pressure. Orientation angles of cells treated with or without SB203580 were measured with inverted microscope. P38 phosphorylation was analyzed with Western blot. Results Eighty percent cyclic strain induced cells rotated from 60° to 90° perpendicular to stretch direction after 4 h strain exposure. P38 phosphorylation reached the peak at 5 min. Fibroblast orientation was inhibited after SB203580 treatment. Conclusion Fibroblast orientation in response to cyclic strain is mediated by p38 phosphorylation.

Keywords: cyclic strain; cell migration; p38

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