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不同声强超声波对细胞骨架微丝F-actin表达的影响 [点此下载全文](#)

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摘要:

目的: 研究不同声强超声波对人脐血管内皮细胞 (ECV-304) 细胞骨架F-actin表达的影响, 探讨超声波对人体的作用机制。方法: 将人脐血管内皮细胞ECV-304接种于6孔板中, 分别以频率800kHz, 占空比为30%功率密度0.20、0.40、0.60和0.80W/cm², 的脉冲超声波辐射5min, 于辐射后不同时间, 对ECV-304细胞进行F-actin免疫荧光染色, 应用激光扫描共聚焦显微镜, 观察细胞F-actin表达的改变, 测定单个细胞F-actin的平均荧光强度。结果: 假辐射组细胞有中等量的F-actin

关键词: [超声](#) [人脐血管内皮细胞](#) [聚合态肌动蛋白](#) [激光扫描共聚焦显微镜](#)

The expressions of cytoskeleton filament F-actin of EVC-304 cells exposed to ultrasound in different intensities [Download Fulltext](#)

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Abstract:

Objective: To observe the expressions of F-actin in ECV-304 (human umbilical vein endothelial cells) cells exposed to ultrasound in different intensity outputs. Method: After primary culture on coverglass, ECV-304 cells were divided into five groups. In experimental groups, the cells were exposed by ultrasound, frequency of 800kHz, 30% duty cycle, with intensity output of 0.20, 0.40, 0.60 and 0.80W/cm² respectively for 5 min. The cells in control group were managed in the same environment as experimental groups but without ultrasound outputs. Laser scanning confocal microscope was used to examine the changes of cytoskeleton filament F-actin after immunofluorescent staining and the photos were taken for further analysis of cells' average fluorescence by spectrofluorimetric quantification. Result: Cells in control group, some fluorescein-labelled substance was in diffusion states. Less actin filaments were tenuous, short and with irregular arrangement. Correspondingly, F-actin in the cells of experimental groups was thick, long and with longitudinal arrangement after exposure. The intensity of fluorescence increased significantly. There was a membrane-like boundary strong fluorescence. More F-actin expressions in experimental groups were being kept obviously for hours. However, 12h later there was no significant difference in F-actin expressions between experimental groups and control group. Anyway, cells in experimental groups showed synchronous changes. Conclusion: F-actin expressions in ECV-304 cells can be changed by 800kHz ultrasound exposures with different intensity outputs in the experiment. The reversible expressions of F-actin indicates that the changes of cell skeleton reconstruction induced by 0.80W/cm² or less ultrasound exposure are reversible.

Keywords: [ultrasound](#) [human umbilical vein endothelial cell](#) [F-actin](#) [laser scanning confocal microscope](#)

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