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Biology in Space (7)

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PKC AND CELL CYTOSKELETON IN HUMAN UMBILICAL VEIN ENDOTHELIAL CELLS UNDER
SIMULATED MICROGRAVITY**Abstract**

Background: In our previous study, ICAM-1 expression on HUVECs increased after simulated microgravity, same results were found in parabolic flight. Morphology changes of F-actin and clustering of ICAM-1 on cell membrane were also observed. To investigate ICAM-1 downstream signal pathways in endothelial cells (ECs) under microgravity, we utilized rotating cell culture system(NASA) to culture ECs and activated by TNF-. Phosphorylation of PKC- and Src were detected by western blotting. We also analyze -tubulin and -actin content change after simulated micrograviy. PKC- phosphorylation was inhibited after 5min simulated micrograviy, and significant inhibition was detected after 1h and 24h. However, -tubulin and -actin have no remarkable change after same time, which suggested cytoskeleton had a distribution change but no content change in short-term simulated microgravity. Otherwise, simulated microgravity induced PKC isoform expression in human lymphocytes, which prompted different PKC subunits had a different response to gravity change. All these need further research.

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