

Objective To detect the expression of heat shock protein 47(HSP47) in renal proximal epithelial cell lines (HK-2) and to investigate the role of HSP47 in the progress of transforming growth factor β 1 (TGF- β 1) induced epithelial-mesenchymal transdifferentiation (EMT) in HK-2 cells. Methods HK-2 cells were exposed to TGF- β 1 (0, 2.5, 5, 10 μ g/L) for different time (0, 12, 24, 48 h). The expression of HSP47 was examined by Western blotting. Then HK-2 cells were exposed to 10 μ g/L TGF- β 1, the expressions of vimentin, zona occludens-1 (ZO-1) were examined by Western blotting and real-time PCR. Furthermore, the expressions of p-Smad3 and Smad3 were examined by Western blotting. HK-2 cells were transfected with HSP47 siRNA and siRNA negative control before exposing to TGF- β 1. Then the expressions of vimentin, ZO-1 were detected by Western blotting and real-time PCR, meanwhile Western blotting for HSP47, p-Smad3 and Smad3. Results Stimulating HK-2 with TGF- β 1 resulted in a significant increased expression of HSP47 in time-and concentration-dependent manner ($P<0.05$). Meanwhile, TGF- β 1 up-regulated the protein and mRNA expression of vimentin ($P<0.05$), and down-regulated the protein and mRNA expression of ZO-1 ($P<0.05$), all in time-dependent manner. Stimulating HK-2 with TGF- β 1 resulted in phosphorylation of Smad3, which was peaked at 30 min, slightly decreased at 1 h, and then increased again between 24 and 48 h ($P<0.05$). Compared to the TGF- β 1 group, inhibition of HSP47 expression in HK-2 up-regulated the protein and mRNA expression of ZO-1, down-regulated the protein and mRNA expression of vimentin ($P<0.05$) and down-regulated the ratio of p-Smad3/Smad3. HSP47 siRNA negative control had no significant effect on the expressions of ZO-1, vimentin and p-Smad3/Smad3 ($P>0.05$). Conclusion HSP47 can promote the EMT of renal tubular epithelial cell which is possibly via the TGF- β 1-Smad3 pathway.



热休克蛋白47在转化生长因子 β 1刺激的肾小管上皮细胞转分化中的作用

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Effect of heat shock protein 47 on epithelial-mesenchymal transdifferentiation induced by transforming growth factor β 1 in the renal tubular epithelial cells

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