中国病理生理杂志 2009 25 (12): 2424-2429 ISSN: 1000-4718 CN: 44-1187/R

论著

Snail1 siRNA 对高糖诱导肾小管上皮细胞表型转变的影响

方开云#,石明隽,肖瑛,桂华珍,郭兵,张国忠△

贵阳医学院病理生理学教研室, 贵州 贵阳 550004

收稿日期 2009-1-18 修回日期 2009-5-13 网络版发布日期 2010-3-16 接受日期 2009-5-13

摘要 目的: 观察Snail1 siRNA对高糖诱导的肾小管上皮细胞向间充质细胞转变（TEMT）的影响。方法: 原代培养肾小管上皮细胞分为5组：（1）对照组（含糖5.5 mmol/L）；（2）高糖组（含糖25 mmol/L）；（3）Snail1 siRNA处理组，转染Snail1 siRNA，6 h后更换为高糖（含糖25 mmol/L）培养；（4）control siRNA处理组，转染control siRNA作为siRNA阴性对照，6 h后换为高糖（含糖25 mmol/L）培养；（5）高渗组（含D-manntio19.5 mmol/L）；72 h后收集细胞，用Western blotting和半定量RT-PCR检测Snail1、TGF-β1、α-平滑肌肌动蛋白（α-SMA）、vimentin和E-cadherin蛋白和mRNA表达。结果: 与高糖组比较，肾小管上皮细胞转染Snail1 siRNA后，Snail1 mRNA和蛋白表达水平分别下降62%和68%（P<0.01）。同时，Snail1 siRNA处理组α-SMA和vimentin蛋白和mRNA表达显著下调（P<0.01），而E-cadherin蛋白和mRNA表达显著上调（P<0.01）。结论: Snail1参与了高糖诱导TEMT的调节。

关键词 Snail1 siRNA 肾小管上皮细胞向间充质细胞转变 高糖

分类号 R363

Effects of Snail1 siRNA on tubular epithelial-to-mesenchymal transition induced by high glucose

FANG Kai-yun,SHI Ming-juan,XIAO Ying,GUI Hua-zhen,GUO Bing,ZHANG Guo-zhong

Department of Pathophysiology, Guiyang Medical College, Guiyang 550004, China. E-mail: zgz107@163.com

Abstract

<FONT face=Verdana>AIM: To explore the effect of Snail1 siRNA on high-glucose induced tubular epithelial-to-mesenchymal transition (TEMT). METHODS: Subconfluent renal tubular epithelial cells were incubated in serum-free DMEM for 24 h to arrest and synchronize the cell growth. Then cells were treated with normal glucose (5.5 mmol/L D-glucose) or high glucose (25 mmol/L D-glucose) for 72 h. Meanwhile 19.5 mmol/L D-manntiol was used as high osmotic control. Snail1 siRNA was transfected into tubular epithelial cells. In parallel, cells were transfected with non-specific siRNA which served as the control data sets. Cells were then treated with 25 mmol/L D-glucose for 72 h. RNA and cell lysates were collected to determine the protein and mRNA levels of Snail1, TGF-β1, α-SMA, vimentin and E-cadherin. RESULTS: Transfection caused the decreases in Snail1 at mRNA and protein levels by 62% and 68% respectively as compared to those in untransfected cells cultured in high glucose medium. Western blotting exhibited that Snail1 siRNA transfection restored E-cadherin protein expression by 61% compared to that in high-glucose-treatment cells, whereas it inhibited high-glucose-induced induction of α-SMA protein by 58%. Similarly, RT-PCR revealed that Snail1 siRNA transfection dramatically suppressed the high-glucose-induced mRNA expressions of α-SMA and vimentin by 72% and 61%, respectively, while E-cadherin mRNA increased by 53%. CONCLUSION: Our study provides direct evidence that Snail1 is able to control TEMT.</FONT>

Key words Snail1 siRNA Kidney tubules epithelial-to-mesenchymal transition High concentration of glucose

DOI: 1000-4718

通讯作者　张国忠 zgz107@163.com