

Silencing miR-16 Expression Promotes Angiotensin II Stimulated Vascular Smooth Muscle Cell Growth

Qingqing Gu

Department of Cardiology, the Affiliated Hospital of Nantong University, Nantong, Jiangsu, China

Abstract

miRNAs are a class of non-coding endogenous small RNAs that control gene expression at the posttranscriptional level and involved in cell proliferation, migration and differentiation. Dysregulation of miRNA expression is involved in a variety of human diseases including cardiovascular diseases. miRNAs have been shown to regulate vascular smooth muscle cell (VSMC) function and play vital roles in hypertension, restenosis and atherosclerosis. Here we reported that miR-16 as one of miRNAs in the miR-15 family was highly expressed in vascular smooth muscle cells (VSMCs) and involved in angiotensin II (Ang II) mediated VSMC signaling pathways. Ang II downregulated miR-16 expression in VSMCs. Lentiviral vector mediated miR-16 knockdown promoted Ang II-induced cell proliferation and migration. Moreover, silencing miR-16 enhanced Ang II induced cell cycle associated gene expression and promoted Ang II-activated cell proliferative pathways ERK1/2 and p38. Our finding demonstrated for the first time that miR-16 was a potential therapeutic target by participating in the Ang II-associated multiple signaling pathways in cardiovascular diseases.

Keywords: Cell growth; vascular smooth muscle; miRNA.

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Biography

Qingqing Gu is currently working at Department of Cardiology, The Affiliated Hospital of Nantong University, Nantong, Jiangsu, People's Republic of China. He has attended many international

conferences to share this research works on Silencing miR-16 Expression.