

[gw22-e0019]

# **ENDOTHELIAL ENRICHED MICRORNAS REGULATE ANGIOTENSIN II-INDUCED ENDOTHELIAL INFLAMMATION AND MIGRATION**

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10.1136/heartjnl-2011-300867.133

The initial stage of atherosclerosis is characterised by recruitment of leukocytes to activate endothelial cells (ECs). MicroRNAs (miRNAs) are a class of 19 to 25 nucleotides, non-protein-coding RNAs that repress target gene expression by translational inhibition or mRNA degradation. The link between miRNA and endothelial functions is largely unknown. Northern blot showed that miR-155 and miR-221 were highly expressed in human umbilical vein endothelial cells (HUVECs) and vascular smooth muscle cells (VSMCs). Bioinformatics analysis proposed Ets-1, a key endothelial transcription factor for inflammation and tube formation, as a candidate target for miR-155 and miR-221/222 cluster. The effect was demonstrated by luciferase reporter assay and Western blot. By using Western blot, we also confirmed that angiotensin II type 1 receptor (AT1R) is a target of miR-155 in HUVECs. Quantitative PCR showed that Ets-1 and its downstream genes, including VCAM1, MCP1 and FLT1, were up-regulated in angiotensin II-stimulated HUVECs, and this effect was partially reversed by over-expression of miR-155 and miR-221/222. In addition, cell adhesion assay revealed over-expression of miR-155 and miR-221/222 effectively decreased the adhesion of Jurkat T cells to Ang II-stimulated HUVECs. Besides, by targeting AT1R, miR-155 can also decrease the HUVECs migration in response to Ang II. In summary, HUVECs highly expressed miR-155 may co-target AT1R and Ets-1 while miR-221/222 targets Ets-1, which indirectly regulate the expression of several inflammatory molecules of ECs, and therefore attenuate the adhesion of Jurkat T cells to activated HUVECs and reduce HUVECs migration. These findings present possible therapeutic targets in atherosclerosis.