RING finger protein 10

Vascular smooth muscle cell (VSMC) hyperproliferation is the main pathological process in various cardiovascular diseases, such as vascular restenosis. This process may be repressed by RING finger protein 10 (RNF10) in metabolic syndrome (MetS) rats.

The aim of a study was to evaluate the inhibitory effects and molecular mechanisms of RNF10 on VSMC hyperproliferation. Neointimal hyperplasia in MetS and high-glucose-induced VSMC hyperproliferation were measured after infection with adenoviruses encoding RNF10 (Ad-RNF10), short hairpin RNF10 (Ad-shRNF10), or green fluorescent protein (Ad-GFP). In vivo and in vitro, we found that overexpression of RNF10 significantly affected neointima formation and VSMC proliferation, and displayed further inhibitory activity by promoting mesenchyme homeobox 2 (Meox2) and suppressing activating protein 1 (AP-1). In contrast, Ad-shRNF10 had an opposite effect on neointimal hyperplasia and VSMC hyperproliferation in vivo and in vitro. Our study indicated that RNF10 inhibited the hyperproliferation with the activities of Meox2 and AP-1 proteins. RNF10 may be a next drug target for treating vascular restenosis and other related cardiovascular diseases [1].

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Li S, Yu G, Jing F, Chen H, Liu A, Luo M, Huang W, Pu P, Chen M. RING finger protein 10 attenuates vascular restenosis by inhibiting vascular smooth muscle cell hyperproliferation in vivo and vitro. IUBMB Life. 2018 Dec 30. doi: 10.1002/iub.1995. [Epub ahead of print] PubMed PMID: 30597731.