

Vascular smooth muscle

Vascular smooth muscle refers to the particular type of smooth muscle found within, and composing the majority of the wall of [blood vessels](#).

The term [mural cell](#) refers generally to [vascular smooth muscle](#) cells and [pericytes](#), both involved in the formation of normal vasculature and responsive to [vascular endothelial growth factor](#) (VEGF).

In [intracranial aneurysm](#) (IA) and [vascular smooth muscle](#) cell (VSMC)s of IA, the relationship between [ANXA3](#) and the [JNK signaling pathway](#) was verified. To investigate the specific mechanism of ANXA3 silencing in IA, they transfected VSMCs with the overexpressed or small interfering RNA (siRNA) of ANXA3, or treated them with an inhibitor of the JNK signaling (SP600125). Cell counting kit-8 (CCK-8) assay was conducted to detect [cell viability](#), and [flow cytometry](#) was conducted to assess cell cycle and apoptosis so as to evaluate the gain- and loss-of-function of ANXA3 and investigate the involvement of the JNK signaling pathway. The aneurysm wall of IA cells demonstrated an elevated level of ANXA3 expression and an activated JNK signaling pathway. VSMCs treated with siRNA-ANXA3 or SP600125 showed decreased expression of JNK, caspase-3, osteopontin (OPN), Bax, and matrix metalloproteinase-9 (MMP-9), as well as phosphate (p)-JNK, but increased the expression of α smooth muscle actin (α -SMA), β -tubulin, and Bcl-2. ANXA3 silencing or inactivation of the JNK signaling pathway also enhanced proliferation and repressed apoptosis of VSMCs. Collectively, this study shows that the silencing of ANXA3 can rescue VSMC function in IAs by inhibiting the phosphorylation and activation of the JNK signaling pathway. These findings may provide a potential therapy for the molecular treatment of IAs ¹⁾.

¹⁾

Wang Y, Wang C, Yang Q, Cheng YL. ANXA3 Silencing Ameliorates Intracranial Aneurysm via Inhibition of the JNK Signaling Pathway. Mol Ther Nucleic Acids. 2019 Jun 19;17:540-550. doi: 10.1016/j.omtn.2019.06.005. [Epub ahead of print] PubMed PMID: 31362241.

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