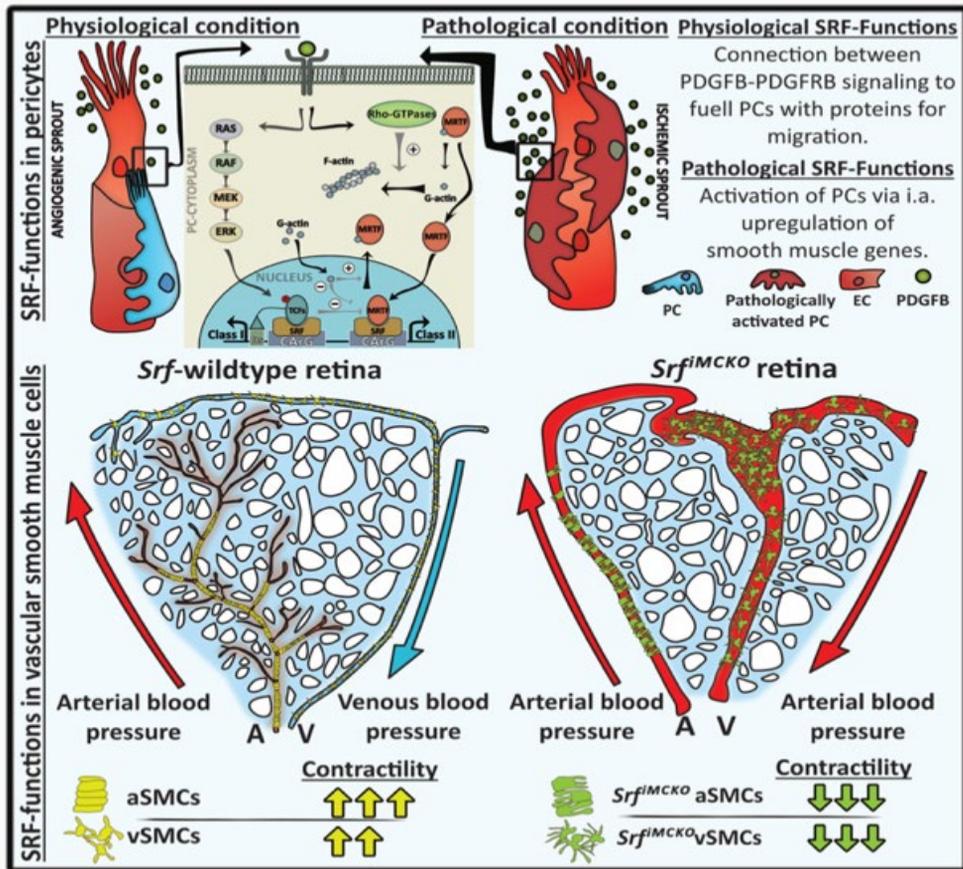


Mural Cell SRF Controls Pericyte Migration, Vessel Patterning and Blood Flow.

Orlich MM, Diéguez-Hurtado R, Muehlfriedel R, Sothilingam V, Wolburg H, Oender CE, Woelfling P, Betsholtz C, Gaengel K, Seeliger M, Adams RH, Nordheim ACirc Res. 2022 Aug 5;131(4):308-327. doi: 10.1161/CIRCRESAHA.122.321109. Epub 2022 Jul 14.

<https://www.ahajournals.org/doi/10.1161/CIRCRESAHA.122.321109>



Key findings.

Orlich et al. investigate the interaction with pericytes and vascular smooth muscle cells (vSMCs) in retinal ischemia.

The authors show that PDGFB (platelet-derived growth factor B)-PDGFRB (platelet-derived growth factor receptor beta) signaling activates the transcription factor SRF (serum response factor) through its cofactor MRTF (myocardin-related transcription factor), which then stimulates pericyte migration.

Deletion of Srf in mural cells results in altered pericyte and vSMC morphology, defects in the actin cytoskeleton, and reduced pericyte migration. Obstruction of SRF signaling in pericytes under ischemic conditions diminishes pathological angiogenesis, making SRF a probable drug target in patients suffering from ischemic retinopathies.

In vSMCs, SRF controls the expression of contractile genes, and its deletion primes severe blood vessel patterning defects and the formation of arteriovenous shunts. This appears causal in the redirection of retinal blood flow, leaving parts of the capillary network poorly supplied.