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REPORTS

MicroRNA-92a Controls Angiogenesis and Functional Recovery of Ischemic Tissues in Mice

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MicroRNAs (miRs) are small noncoding RNAs that regulate gene expression by binding to target messenger RNAs (mRNAs), leading to translational repression or degradation. Here, we show that the miR-17~92 cluster is highly expressed in human endothelial cells and that miR-92a, a component of this cluster, controls the growth of new blood vessels (angiogenesis). Forced overexpression of miR-92a in endothelial cells blocked angiogenesis in vitro and in vivo. In mouse models of limb ischemia and myocardial infarction, systemic administration of an antagomir designed to inhibit miR-92a led to enhanced blood vessel growth and functional recovery of damaged tissue. MiR-92a appears to target mRNAs corresponding to several proangiogenic proteins, including the integrin subunit alpha5. Thus, miR-92a may serve as a valuable therapeutic target in the setting of ischemic disease.

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