

MicroRNAs: opening a new vein in angiogenesis research.

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Public Summary:

Scientific Abstract:

Activation of the angiogenic program in endothelial cells is vital for normal embryonic development and for physiological angiogenesis in the adult. In addition, angiogenesis is an important therapeutic target: Formation of new blood vessels is desirable for regenerative purposes, such as during tissue healing or transplantation, but can be pathological, as in diabetic retinopathy and cancer. The response of the vascular endothelium to angiogenic stimuli is modulated by noncoding RNAs called microRNAs. The endothelial cell-specific microRNA microRNA-126 (miR-126) promotes angiogenesis in response to angiogenic growth factors, such as vascular endothelial growth factor or basic fibroblast growth factor, by repressing negative regulators of signal transduction pathways. Additional microRNAs have been implicated in the regulation of various aspects of angiogenesis. Thus, targeting the expression of microRNAs may be a novel therapeutic approach for diseases involving excess or insufficient vasculature.

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