New microRNA target for protecting against vascular leakage

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Abstract

Vascular leakage is excessive permeability of blood vessel walls. It's an inflammatory process associated with illnesses like septic shock and lung injury induced by ischemia or reperfusion. While the mechanism of vascular leakage has remained unclear, a new study suggests that microparticles derived from platelets and endothelial cells could play critical roles. In rats, injection of these microparticles induced pulmonary vascular leakage and lung injury. The microparticles acted synergistically, with endothelial microparticles (EMP) causing platelet buildup, more platelet microparticle (PMP) formation, and further vascular leakage. Experiments showed that certain microRNA (miR) cargo in the microparticles seemed to control the mechanism of injury. Inhibiting miR-155 in endothelial microparticles and miR-126 in platelet microparticles alleviated the effects of the two types of microparticles on vascular leakage and injury. The results offer a possible new target for treating lung injury and a new inhibitory drug for protecting against lung injury after ischemia or reperfusion.