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*Aligned Collagen Nanofibrillar Scaffolds and Hypoxia Synergistically Drive Endothelial-Mesenchymal Transition*

**Abstract**

Peripheral arterial disease (PAD) is an increasingly common vascular disease, affecting over 230 million people worldwide. Reperfusion of ischemic tissue is the definitive treatment. Many patients with PAD demonstrate ability to restore flow to ischemic limbs in part due to hypoxia signaling pathways in endothelial cells (ECs). However this capacity is limited and warrants further investigation. Our objective is to understand how hypoxia and patterned biomaterials work in tandem to stimulate ECs, and induce vascular regeneration in ischemic tissue. Key findings generated by this study will establish a clear link between patterning of ECs and molecular signaling pathways, which will drive innovation of novel therapeutic targets to improve vascular regeneration in PAD.