

SEMINAR SERIES

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Mechanical Stimuli As A New Therapeutic Avenue for Endothelial Dysfunction and Atherosclerosis

Featuring Dr. Ryan Pedrigi
University of Nebraska - Lincoln



Friday, Dec. 1 | 10:00 am – 11:00 am | BRB 167

PRESENTATION ABSTRACT

Atherosclerotic plaques do not form randomly in the vasculature, as would be expected if systemic risk factors determined the site of development. Rather, they form in arterial segments near bifurcations and high curvature that contain “disturbed” blood flow. In contrast, relatively straight arterial segments with normal blood flow are protected. The interaction of flowing blood with arteries of different geometries induces different mechanical conditions at the endothelium that determines the susceptibility of an arterial segment to plaque formation and progression. But what about plaque regression? We have recently demonstrated significant therapeutic efficacy of restoring normal blood flow in atherosclerotic arteries. We have also recently demonstrated that the mechanical effects of ultrasound on endothelial cells can activate beneficial mechanosensitive signaling. Together, these findings form the foundation for development of a new mechanotherapy for atherosclerosis.

ABOUT DR. PEDRIGI

Ryan Pedrigi is an assistant professor in the Department of Mechanical and Materials Engineering at UNL. His research group is at the interface of mechanics and biology. The goal is to leverage understanding of how mechanics regulates cell functions to develop new therapeutics.

more info at cobre.unomaha.edu

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