Robert M. Berne CVRC Seminar

The Robert M. Berne Cardiovascular Research Center Presents

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Nanoscale Materials to Target Diseases in the Vasculature

Cardiovascular disease is the leading cause of mortality globally, with inflammation-inducing atherosclerotic plaque being the main contributing factor. The CANTOS trial showed that decreasing inflammation reduced cardiovascular events without lowering lipids, but systemic anti-inflammatory administration was limited by off-target effects. Thus, there is a great need for a new therapeutic that actively prevents progression of atherosclerotic plaques by modulating inflammatory pathways. Nanotechnology offers a noninvasive approach for the management of cardiovascular disease via targeted delivery of therapeutic agents that are otherwise limited by pharmacokinetics or toxicity from systemic administration. We have engineered a peptide amphiphile (PA) specifically targeted to sites of atherosclerosis by covalently incorporating an apolipoprotein A1 (ApoA1)-mimetic peptide. We showed that these PAs self-assemble into supramolecular nanofibers that localize to sites of atherosclerosis when intravenously administered to low-density lipoprotein receptor knock out (LDLR-/-) mice. Thus, we seek to develop a multimodal, targeted anti-inflammatory nanotherapeutic to prevent plaque progression.

Thursday October 8, 2026
11:00 AM-12:00 PM
MR5 3005

Refreshments served

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