DEPARTMENT OF BIOMEDICAL ENGINEERING SEMINAR SERIES
PRESENTS

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“Engineered Heart Tissues: Maturity and Disease Modeling”

ABSTRACT: There is currently a growing need for new disease modeling tools for therapeutic development and personalized medicine. Engineered heart tissues (EHTs) are three-dimensional, fibrin-based heart muscle constructs capable of generating advanced in vitro cardiovascular disease models at a fraction of the time and cost of traditional animal models. I am focused on titin, a giant filamentous protein that regulates sarcomere organization and provides passive stiffness to cardiomyocytes, and its role in cardiomyopathies. For example, dilated cardiomyopathy (DCM) patients have been shown to undergo eccentric remodeling with a switch in titin expression from a stiffer N2B isoform to a more compliant N2BA isoforms. Titin analysis of EHTs have indicated immature isoform expression patterns, but through the use of angiotensin II and electrical pacing we have been able to modify titin isoform expression to bring them closer to adult-like ratios. I will also be discussing personalized medicine with cardiomyocytes derived from human induced pluripotent stem cells (hiPSCs) and antisense oligonucleotide (AON)-based gene therapy.

Please join us on

Monday, February 3rd, 2020
12:00-12:50 pm, Keating Bldg., Room 103
Refreshments will be available at 11:50 am

Hosts: Dr. Minkyu Kim
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