



Biomedical Engineering Distinguished Lecturer

Sharon Gerecht, PhD

Professor Kent Gordon Croft Faculty Scholar
Director, the Institute for NanoBioTechnology
Johns Hopkins University



Date: Wednesday, September 11, 2019

Time: 4:00 pm

Location: Clark 110 with overflow in Kavli 316
Homewood Campus

Reception immediately to follow,
Clark first floor lobby

Faculty Host: Michael I. Miller, Director

Guiding 3D vascular fate and assembly

Abstract: Vascular differentiation and formation (morphogenesis) takes place in an intricate milieu. This unique microenvironment is situated throughout the body in diverse types of healthy tissues, yet it seems to activate/inhibit similar mechanisms of the microvasculature. Two parameters of this microenvironment seem critical for blood vessel growth and stabilization: (i) the extracellular matrix, which provides critical support for vascular cell adhesion, proliferation, migration, and morphogenesis, and (ii) low oxygen concentrations (hypoxia), which is a critical factor promoting vascularization during embryonic development and tumor growth. In this talk I will present our recent efforts to understand how these physicochemical cues and downstream signaling pathways impact vascular fate and assembly from progenitors and pluripotent stem cells.

Bio: Dr. Gerecht is Professor and Director, The Johns Hopkins Institute for NanoBioTechnology; Departments of Chemical and Biomolecular Engineering, Materials Science and Engineering, Biomedical Engineering and Oncology, Johns Hopkins University.

Dr. Gerecht's research group studies the interactions between cells and their microenvironments with the long-term goal of engineering artificial microenvironments capable of guiding differentiation and regeneration. The research program is based on the integrated and advanced use of tissue engineering systems and is grounded in the fundamentals of interfacial science and engineering with stem cell biology.

Dr. Gerecht is the recipient of the Allan C. Davis Medal from the Maryland Academy of Sciences (2008), the North America Vascular Biology Organization Junior Investigator Award (2009), the Basil O'Connor Starter Scholar Research Award from the March of Dimes Foundation (2009-2011), the National Scientist Development Award (2008-2012) and Established Investigator Award (2014-2019) both from the American Heart Association, the National Science Foundation CAREER award (2011-2016), the W.W. Smith Charitable Trust Heart award (2014-2017), and the JHU Inaugural President's Frontier Award (2015). Dr. Gerecht is an elected Fellow of the American Institute for Medical and Biological Engineering (2016). She is the author of more than 150 papers, book chapters, and patents in her field. Dr. Gerecht is a co-founder of Gemstone Biotherapeutics, LLC, a spin-off company based on technologies developed in her lab, focusing on wound healing.