

**DR. NGAN F. HUANG** is an Assistant Professor in the Department of Cardiothoracic Surgery at Stanford University and Principal Investigator at the Veterans Affairs Palo Alto Health Care System. Dr. Huang completed her BS in Chemical Engineering from the Massachusetts Institute of Technology, followed by a PhD in bioengineering from the University of California Berkeley & University of California San Francisco Joint Program in Bioengineering. Prior to joining the faculty, she was a postdoctoral scholar in the Division of Cardiovascular Medicine at Stanford University. Her laboratory investigates the interactions between stem cells and extracellular matrix microenvironment for engineering cardiovascular tissues to treat cardiovascular and musculoskeletal diseases. Dr. Huang has authored over 90 publications and patents, including reports in Nat Med, PNAS, and Nano Lett. She has received numerous honors, including a NIH K99/ROO Career Development Award, Fellow of the American Heart Association, a Young Investigator award from the Society for Vascular Medicine, a Young Investigator Award from the Tissue Engineering and Regenerative Medicine International Society-Americas, and a Rising Star award at the Cell & Molecular Bioengineering conference. Her research is funded by the NIH, NSF, Department of Defense, the Department of Veteran Affairs, and the American Heart Association.



## **DR. NGAN F. HUANG**

Assistant Professor of Cardiothoracic Surgery  
Stanford University

Miami Heart ♥ Month

FRIDAY, FEBRUARY 4, 2022 | 9:00 AM | HYBRID  
EC 2300 & VIA ZOOM

### **EXTRACELLULAR MATRIX CUES FOR ENGINEERING CARDIOVASCULAR REGENERATION**

**ABSTRACT:** The laboratory of Dr. Huang investigates the interactions between induced pluripotent stem cell derivatives and the extracellular matrix (ECM) microenvironment for engineering vascularized tissues to treat tissue ischemia or injury. In this talk, Dr. Huang will discuss the role that nano-scale geometric patterning and chemical composition of ECM proteins in modulating endothelial differentiation, endothelial function, survival, and angiogenic capacity. Dr. Huang will discuss recent work utilizing spatially patterned nanofibrillar scaffolds as multi-functional biomaterials for cell transplantation, spatiotemporal gene delivery, and for

engineering vascularized tissues. These strategies are used to treatment of cardiovascular diseases such as myocardial infarction, peripheral arterial disease and abdominal aortic aneurysm. Towards developing a more physiologically relevant endothelial ECM milieu, Dr. Huang will describe the generation of combinatorial ECM microarrays and reveal the role of specific combinatorial ECMs in modulating endothelial cell survival and angiogenic function in ischemia-mimetic environments. Together, these examples illustrate the importance of the ECM microenvironment for vascular regeneration.



Through the generous support of the Wallace H. Coulter Foundation, the Department of Biomedical Engineering facilitates weekly lectures each year during academic terms. Experts in all areas of Biomedical Engineering are invited to provide a research seminar and to meet with faculty and students to discuss the latest developments and research in Biomedical Engineering.

Friday, February 4, 2022 | 9:00 AM  
<https://bme.fiu.edu/seminars>