

BIOENGINEERING

PRESENTS

“Extracellular Matrix Control of Vascular Regeneration”



THURSDAY, March 11th, 2021

12:00 – 1:00 PM

Zoom Link:

<https://ucla.zoom.us/j/97216069429>

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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 ongoing work to utilize spatially patterned nanofibrillar scaffolds and endothelial interactions for engineering spatially patterned skeletal muscle to treat muscle injury or to enhance vascular regeneration to ischemic limb tissue. 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.

BIOGRAPHY:

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/R00 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.

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