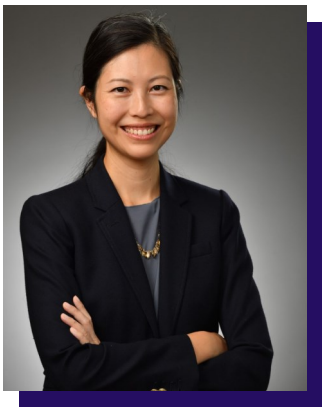
Joint Department of

BIOMEDICAL ENGINEERING

UNC CHAPEL HILL | NC STATE UNIVERSITY

Coulter Seminar Series Presents

"Development and Regeneration of Fibrous Connective Tissues"



Alice H. Huang, PhD
Associate Professor
Bioengineering (in Orthopedic Surgery)
Irving Medical Center
Columbia University

Dr. Alice Huang is currently an Associate Professor in the Department of Orthopedic Surgery at Columbia University. Dr. Huang graduated from Barnard College and the School of Engineering and Applied Science at Columbia University with a B.A. in Asian/Middle Eastern Studies and a B.S. in Biomedical Engineering. She then completed her Ph.D in Bioengineering at the University of Pennsylvania and postdoctoral research in Developmental Biology at Shriners Hospital for Children. Dr. Huang's group combines tools and approaches from developmental biology and tissue engineering to study regenerative and non-regenerative healing of musculoskeletal tissues. Dr. Huang's team is especially interested in understanding the cell and molecular mechanisms that regulate development, regeneration, and engineering of fibrous connective tissues, such as tendons/ligaments/annulus fibrosis, which have been relatively understudied.

ABSTRACT

Adult tendon heals via fibrosis, and this failure to re-establish native tendon structure is likely the leading cause of injury recurrence. To date, most models of tendon injury are models of poor, fibrotic healing, which limits the ability to identify regenerative mechanisms. In recent work, we showed that neonatal mice are able to regenerate functional tendons, however regenerative capacity is lost in adult stages with tendon maturation. Using these models, we are testing mechanisms that distinguish neonatal regeneration from adult scar formation. In particular, we have identified differences in intrinsic tenocyte capacity, the immune environment, and signaling pathways that may drive regeneration. Using developmentally-directed differentiation of pluripotent stem cells, we are also establishing protocols for generating 'regenerative' tenocytes in vitro for adult tendon repair.

Friday, October 7th
12:00 Noon

Presented From: 4142 Engineering Building III (NC State)
Videoconferenced to: 321 MacNider Hall (UNC)
& East Carolina University (ECU)