Department of
Biomedical Engineering
UNIVERSITY OF WISCONSIN-MADISON

Fall 2017 Seminar Series

"What's Eating You?"

Quantifying Proteolytic Activity in Health and Disease to Predict Disease Potential

About the Speaker

Manu Platt
Associate Professor of Biomedical Engineering, Georgia Tech

Dr. Manu Platt received his B.S. in Biology from Morehouse College in 2001 and his Ph.D. from the Georgia Tech and Emory joint program in biomedical engineering in 2006. He returned to Georgia in 2009 after finishing his postdoctoral training in orthopedic tissue engineering and systems biology at MIT, and has since been promoted and tenured. His research centers on proteolytic mechanisms of tissue remodeling during disease progression using both experimental and computational approaches. The diseases of Dr. Platt's research highlight healthcare disparities domestically and internationally; His interest in diesases such as HIV-mediated cardiovascular disease has led him to South Africa and Ethiopia in search of collaborative solutions implementable in low-resource settings. His work has been funded by the NIH Director's New Innovator Award, International AIDS Society, Georgia Cancer Coalition, and the National Science Foundation. Dr. Platt is also the Diversity Director for the NSF Science and Technology Center for Emergent Behaviors of Integrated Cellular Systems (EBICS). Awards for mentoring and outreach have included the Georgia Tech Diversity Champion award, Junior Faculty Above and Beyond Award, and the Junior Faculty Outstanding Undergraduate Research Mentor Award from Georgia Tech. He was recently named an Emerging Scholar by Diverse: Issues in Higher Education magazine in 2015, Atlanta 40 under 40 by the Atlanta Business Chronicle in 2016, and the Biomedical Engineering Society Diversity Award in 2017.

Patient-to-patient variability in disease progression continues to complicate clinical decisions in diagnosis and treatment. We focused on individual variability in production of cysteine cathepsins, powerful proteases that are the most potent mammalian collagenases and elastases and are upregulated during tissue-destructive disease progression. We study them in the context of tissue remodeling during cancer progression/metastasis and in arterial remodeling, specifically in the vasculature of children with sickle cell disease that have high risks for strokes early in life.

During this seminar, Dr. Platt will discuss:

1) experimental and computational tools he has developed to better quantify and model the proteolytic network's role in disease progression

2) fundamental insights and consequences of proteolytic network perturbation on extracellular matrix remodeling

3) applications in the for personalized medicine strategies to address patient variability in disease progression, while identifying new targets for pharmacological targeting

Monday, November 20, 2017
12 - 1 PM in Tong Auditorium (1003 Engineering Centers)