

“Things Fall Apart: Proteolytic Networks in Tissue Destructive Diseases”

Manu Platt, PhD

Associate Professor

Wallace H. Coulter Department of Biomedical Engineering
Georgia Institute of Technology & Emory Univ. School of Medicine



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 finished his postdoctoral training at MIT in orthopedic tissue engineering and systems biology prior to returning to Georgia Tech and Emory in the joint department of Biomedical Engineering in 2009, where he has since been promoted and tenured. His research centers on proteolytic mechanisms of tissue remodeling during disease progression using both experimental and computational approaches. These diseases of focus are health disparities in the U.S., but global health concerns: pediatric strokes in sickle cell disease, personalized and predictive medicine for breast cancer, and HIV-mediated cardiovascular disease, which has taken him to South Africa and Ethiopia for collaborative work to find solutions for low resource settings. His work has been funded by NIH Director's New Innovator Award, International AIDS Society, Georgia Cancer Coalition, and the National Science Foundation. Integrated with his research program are his mentoring goals of changing the look of the next generation of scientists and engineers to include all colors, genders, and backgrounds. Aligned with that goal, Dr. Platt, with Bob Nerem, co-founded and co-directs Project ENGAGES (Engaging the Next Generation At Georgia Tech in Engineering and Science), a program paying African-American high school students from Atlanta Public Schools to be researchers in Georgia Tech labs since 2013. Awards for mentoring and outreach have included the Georgia Tech Diversity Champion award and Georgia Tech Outstanding Doctoral Thesis Advisor. He was named an Emerging Scholar by *Diverse: Issues in Higher Education* magazine in 2015, the Atlanta 40 under 40 by the Atlanta Business Chronicle in 2016, the Biomedical Engineering Society Diversity Award and Lecture in 2017, and inducted as a Fellow of the American Institute for Medical and Biological Engineering (AIMBE) in 2019. Most excitingly to him, was selection this year as one of the Root 100, annual list of the most influential African Americans, ages 25 to 45 by The Root, a web platform for Black Opinion News and Culture.

ABSTRACT

Dr. Platt's research centers on proteolytic mechanisms of tissue remodeling during disease progression using both experimental and computational approaches. These diseases of focus are health disparities in the U.S., but global health concerns: pediatric strokes in sickle cell disease, personalized and predictive medicine for breast cancer, and others, which have taken him to South Africa and Ethiopia for collaborative work to find solutions for low resource settings. Cysteine cathepsins are the most potent mammalian collagenases and elastases, but cathepsin pharmacological inhibitors continue to fail human clinical trials, mostly due to unexpected side effects. This suggests there are underlying regulatory behaviors or feedback loops yet to be elucidated. During this seminar, Dr. Platt will discuss 1) experimental and computational tools to better quantify and model protease activity, 2) consequences of their upregulation due to sickle cell disease, and 3) fundamental insights and consequences of the underlying enzymology to improve pharmacological targeting.

Friday, October 2nd
12:00 Noon

Seminar will be presented virtually via Zoom:

<https://go.unc.edu/f3QHx>