VANDERBILT UNIVERSITY College of Arts and Science

Department of Biological Sciences Seminar Series

Lauren Parker Jackson, Ph.D.
Vanderbilt University

Monday,
August 27

4:10 pm

1220 MRBIII

Tea Time
3:45
MRBIII Lobby

"Mechanisms of coat assembly & regulation in membrane trafficking pathways"

Membrane trafficking pathways are vital to eukaryotic cell health and viability. The Jackson lab investigates the molecular structures and functions of coat protein complexes that promote cellular trafficking pathways. We focus on the roles of the adaptor protein 4 (AP4), retromer, and coat protein complex I (COPI) coats in both fundamental cell biology and human disease. Coat protein complexes function as "hubs" by recognizing cargo and coordinating large protein networks that drive regulated formation of vesicles or tubules at donor membranes. We are interested in the molecular events that govern coat assembly and regulation. We use a variety of biochemical, biophysical, structural, and cell-based methods to address at the molecular level how coats interact with protein and lipid partners to initiate and regulate coat assembly and to sort cargoes to different destinations. In my talk, I will highlight recently published and ongoing work on AP4 coats. I will also present two unpublished stories: single particle cryoEM data that reveal how mammalian retromer assembles, and biochemical data that suggest the role of an ArfGAP in regulating COPI coat formation.