

Johns Hopkins University

Department of Biology Seminar Series



Damian Ekiert

**Dept of Cell Biology &
Microbiology**

NYU School of Medicine

**Tuesday Sept 5th, 2023 | 4-5pm
Mudd 100**

**"Bridges, Tunnels, and Ferries: How bacteria
move lipids between membranes"**

Gram-negative bacteria are surrounded by an outer membrane composed of phospholipids and lipopolysaccharide, which acts as a barrier and contributes to antibiotic resistance. The transport systems that drive phospholipid translocation across the periplasm, such as the MCE (Mammalian Cell Entry) systems, have not been well characterized at the molecular level. Using Cryo-EM and other approaches, we have begun to unravel some of the mechanisms of lipid transport across the bacterial envelope by MCE systems in Gram-negatives, such as *E. coli* and *Pseudomonas aeruginosa*, as well as unconventional double-membraned bacteria, like *Mycobacterium tuberculosis*. Our lab is interested in understanding how these systems drive the insertion/extraction of lipids from membranes, facilitate transport across the envelope, and how this entire process is regulated. I will present our latest work on this intriguing family of transporters, and discuss our working model for how they facilitate the maintenance of the outer membrane and lipid transport across the cell envelope in diverse bacterial species

Host: John Kim & Tatjana Trcek