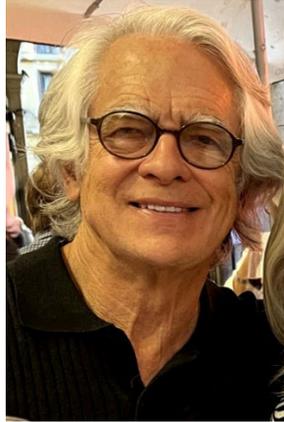


Department of Biochemistry and Molecular Biophysics Seminar

Wednesday, February 25 at 4:00 p.m. in Ackert 120

Coffee and cookies at 3:45 p.m. in Chalmers 168



Dr. Phillip E. Klebba, University Distinguished
Professor

Department of Biochemistry and Molecular Biophysics
Kansas State University

Mechanisms of TonB-dependent Iron Transport in Gram (-) Bacteria

Iron is an indispensable metabolic cofactor for both pro- and eukaryotes, which engenders a natural competition between bacterial pathogens and their human and animal hosts. Bacteria secrete siderophores that extract Fe^{3+} from tissues, fluids, cells and proteins; the TonB-dependent receptors of the Gram (-) bacterial outer membrane actively acquire the resulting ferric siderophores, as well as other iron-containing molecules like heme. Conversely, eukaryotic hosts combat bacterial iron scavenging by sequestering Fe^{3+} in binding proteins and ferritin. The variety of iron uptake systems in Gram (-) bacterial pathogens illustrates a range of chemical and biochemical mechanisms that facilitate microbial pathogenesis. My presentation will focus on the mechanisms of these uptake processes, that are unique, active transport reactions in a membrane that cannot sustain an ion gradient.