

WINTER 2005 SEMINAR SERIES

F21C BIOPROCESSING & BIOSENSING CENTER

• DIVISION OF FOOD SYSTEMS & BIOENGINEERING •

PRESENTER

Dr. Edward Yu, Assistant Professor

Department of Physics and Astronomy, Iowa State University

TITLE

AcrB: Structural Basis for Multidrug Binding

ABSTRACT

Multidrug efflux pumps cause serious problems in cancer chemotherapy and treatment of bacterial infections. Yet high-resolution structures of ligand-transporter complexes have previously been unavailable. We obtained X-ray crystallographic structures of the trimeric AcrB pump from *Escherichia coli* with four structurally diverse ligands. The structures show that three molecules of ligands bind simultaneously to the extremely large central cavity of 5,000 cubic angstroms, primarily by hydrophobic, aromatic stacking, and van der Waals interactions. Each ligand uses a slightly different subset of AcrB residues for binding. The bound ligand molecules often interact with each other, stabilizing the binding.

DATE • TIME • LOCATION

Tuesday, March 8, 4:00pm

Ag Eng Bldg 105 • Refreshments