

# Graduate Seminar Series

## **Identification and Characterization of Critical *Shigella* Type Three Secretion System Regulatory Proteins**



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11:30 AM • ENGR 406

Hosted by Dr. Yu Huang  
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Abstract: Many Gram-negative pathogens, including *Shigella* spp., use conserved type three secretion systems (T3SS) as key virulence factors. The *Shigella* T3SS relies on an associated needle-like type three secretion apparatus (T3SA) which penetrates the host cell membrane and provides a unidirectional conduit for injection of effectors into host cells. The rapid emergence of multi-drug resistant strains from this family of pathogens underscores the need to better understand not only the specific T3SS mechanisms supporting virulence, but to identify potential targets for non-antibiotic based therapeutics. We are currently studying several potential targets, including surface exposed T3SS tip proteins that appear to play critical roles in environmental sensing and maturation of the apparatus as well as a recently identified T3SS ATPase that is required for proper protein secretion and apparatus secretion. Mechanistic and therapeutic implications for *Shigella* and related pathogens will be discussed.



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