

Wednesday, November 25, 2020
11:00am - 12:00pm PST

“Structural hybrid methods to probe the Type III Secretion System of Pathogenic Bacteria”

Presented by:

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Bacteria have evolved several sophisticated assemblies to transport proteins across their biological membrane, including those required specifically for pathogenicity. Recent advances in our understanding of the molecular details governing the action of these protein secretion systems has benefited from an integrated toolbox involving X-ray crystallography, NMR, and electron microscopy. Highlights of advances in our structure/function analysis of the multi-membrane spanning Type III Secretion System will be presented. This syringe like nanomachine, common to many Gram-negative pathogens, serves to inject virulence effector proteins through the dual membrane of the bacteria as well as that of its infected host cell. We will discuss developments on projects involving the Enteropathogenic Escherichia coli and Salmonella enterica Type III Secretion Systems via cryo-electron microscopy, tomography and NMR. A molecular and cellular understanding of the Type III Secretion System being garnered from these studies provides the foundation for the development of new classes of antibacterials and vaccines to combat infection in the clinic and community.



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