Department of Molecular and Cellular Biology

Graduate Seminar MCB*6500

Friday, September 27th, 2024 @ 12:45 p.m.

presented by:

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"Functional characterization of the WrtC in Rhizobium tropici CIAT899 O-antigen synthesis"

Rhizobium species are Gram-negative bacteria well-known for their nitrogen-fixing abilities and symbiotic relationships with legume plants (e.g. peas). Among these, *Rhizobium tropici* is particularly interesting for research due to its resilience to environmental stresses and ability to thrive in various host plants. A critical component in establishing a symbiotic relationship with legume plants is the lipopolysaccharide (LPS), which is composed of Lipid A, a core oligosaccharide, and O-polysaccharide (O-PS). The O-PS is synthesized through the action of glycosyltransferases (GTs), which sequentially add monosaccharides to form O-repeat units.

In *R. tropici*, six GTs have been identified as primary enzymes in O-PS synthesis. As part of these six GTs, my research target WrtC plays an important role in modifying the growing O-PS chain. It is a multifunctional enzyme that not only has glycosyltransferase activity but also acetyltransferase (AT) and methyltransferase (MT) functions. This presentation highlights the structure, mechanism, and function of each functional domain in WrtC, and discusses future research directions to further explore the less-studied WrtC.