

# Biology Seminar



Western  
UNIVERSITY · CANADA

12:30 - 1:30 pm  
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BGS 0153



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## **Integrative control of feeding and reproduction in the Chagas disease vector, *Rhodnius prolixus*.**

*Rhodnius prolixus* is a blood-gorging insect and a vector for human Chagas disease. The insect transmits the disease following feeding, when it excretes urine and feces contaminated with the *Trypanosoma cruzi* parasite. My research is the study of how cells, tissues and organ systems in insects are regulated and integrated by neurons and neuroendocrine pathways that utilize a variety of neuroactive chemicals (neuropeptides and amines), G-protein coupled receptors (GPCRs) and second messengers. I am interested in how these systems participate in successful behaviours; including aspects of reproduction, digestion, circulation of nutrients and waste, and ecdysis behaviour. Some neuroactive chemicals are expressed in a variety of cell types and so it is possible that these neuroactive chemicals might in themselves represent functional units that interact to bias the insect towards a new functional state or behaviour. In addition, these neuroactive chemicals are also components of the brain-gut axis, and therefore serve as a link between the endocrine / neural system of the digestive tract, the neuroendocrine system, the central nervous system (CNS), and circulation of haemolymph (blood) and neurohormones.

In this seminar I will concentrate on the link between feeding and reproduction in *R. prolixus*, and in particular, on the role of a corticotropin-releasing factor (CRF)-like peptide which acts as a diuretic hormone in *R. prolixus* (Rhopr-CRF/DH); however, its distribution throughout the insect's CNS and the expression of its receptor in feeding-related tissue as well as the female reproductive system suggests a multifaceted role for the neurohormone beyond that of diuresis.

