



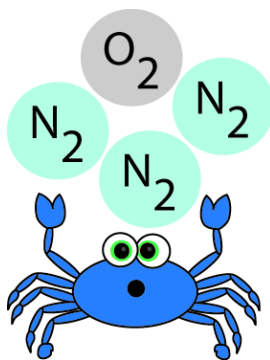
Ph.D. Dissertation Defense

Amanda Buchberger Jones

Lingjun Li Research Group

“Development and Application of Quantitative and Qualitative Mass Spectrometry Techniques to Probe Crustacean Neuropeptides and Beyond”

Biomolecules, especially neuropeptides, are highly involved in the stress response. Due to their biological and chemical complexity, studying neuropeptides in mammals is challenging. To address this challenge, this thesis employs both model organisms and mass spectrometry (MS) to better characterize neuropeptides and their role in stress. For example, crustaceans provide a simple, well-characterized network for method development while also being ecological relevant to stressors of interest (*e.g.*, hypoxia and salinity). With MS, we can probe perturbations at a global level both quantitatively and qualitatively. Quantitatively, several tagging agents have been explored to improve multiplexing and extend to novel applications. For example, MS imaging, a powerful technique capable of determining the localization of hundreds of biomolecules without prior knowledge of their structure, is inherently qualitative. While useful for relative comparisons between conditions, the application of quantitative tagging reagents to MS imaging explored in this work could advance quantitative MS imaging techniques. Overall, this work improves methodology for probing biomolecules, such as neuropeptides, while expanding biological information about neuropeptides and their roles in stress.



June 14, 2018

10:00 am.

Rennebohm Hall - Room 2002