



Screening for neuropeptide modulators of nursing and foraging behavior in the clonal raider ant

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Complex social behaviors have evolved in diverse taxa multiple independent times, however the molecular determinants remain elusive, as standard genetic model organisms do not form cooperative societies exhibiting division of labor. Therefore, our limited understanding in this realm represents a fundamental gap in our biological knowledge. Our lab has developed the clonal raider ant, *Ooceraea biroi* into an emerging social model organism that is experimentally tractable for investigations into the molecular basis of complex social behaviors. These ants exhibit age polyethism, whereby young workers act as nurses and begin to express foraging behavior as they age. This process involves learning and is associated with increased brain expression of neuromodulators, suggesting that differential neuromodulation may influence social behavioral plasticity and the division of labor. Here, I will present our research into the role of neuromodulatory peptides in the regulation of social behaviors in *O. biroi*. We identified the *O. biroi* neuropeptidome utilizing the annotated genome, and detailed mature neuropeptide sequences through conservation with other social Hymenoptera. We confirmed expression of these molecules in *O. biroi* with brain-specific RNA sequencing and protein mass spectrometry analyses. We have developed a robust assay that captures nursing and foraging behaviors at the level of individual ants. We are currently using this assay in a screen to identify neuropeptides that regulate these social behaviors.