



Knowing where you're going: the role of the mushroom body in ant visual navigation

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Successful navigation is crucial for finding mates, foraging, defending territories, and avoiding predators. While a variety of sensory stimuli can be used for navigation, vision is an important modality in most animals, including many ant species. Even with miniaturized brains, ants are exceptionally accurate at visually navigating and pinpointing locations of interest. The Australian bull ant *Myrmecia midas*, specifically, is highly visual and primarily uses terrestrial landmarks for finding its way home from a foraging trip. These landmarks are thought to be learned early in the ants' foraging career. The behavioural characteristics of learning and using terrestrial landmarks have begun to be described in a few ant species; however, the brain regions and mechanisms involved in processing navigational information are not well understood. We tested the hypothesis that the mushroom body alpha lobe, a region specifically implicated in long-term memory formation, is involved in processing terrestrial landmark information. In *M. midas* foragers that were motivated to return home, we pharmacologically inhibited activity in the alpha lobe. In this talk I will demonstrate how inhibiting alpha lobe activity affects the ability of ants to visually navigate in their natural environment.