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Parasite-induced changes in host behavior and gene expression after infection

Hannes Lerp, Johanna Mazur, Harald Binder, Sara Beros, Susanne Foitzik, **Barbara Feldmeyer**

Parasite infections may affect host organisms on several levels from physiology, morphology, life history to behavior, and thus may have great impact on the hosts' fitness. The observed changes in the host can either be attributed to host defenses to reduce the costs of infection, they can be by-products of infection, or they can be the result of manipulation by the parasite in order to increase its transmission or reproduction. In social insects not only the infected individual itself but the whole colony is affected by the parasites presence and has to buffer the consequences as community. We could show that the cestode parasite *Anomotaenia brevis* greatly affects the behavior, life history and morphology of individual *Temnothorax nylanderi* host ants. In addition parasitized colonies show lower aggression levels than healthy colonies, or colonies after removal of infected individuals. To understand the proximate mechanisms of parasite-induced behavioral changes, we compared brain gene expression patterns between infected individuals, their healthy sisters and individuals from uninfected colonies. We will report on the functional gene categories overrepresented in parasitized individuals compared to the others and specifically investigate genes known to mediate aggressive behavior and immunity in insects.