

**OR265***Deconstruct the soup - cuticular hydrocarbon signals of Australian meat ants***Qike Wang**, Jason Goodger, Mark Elgar

The capacity to distinguish nestmates from others is critically important for the maintenance and survival of social insect colonies. It is widely accepted that workers use cuticular hydrocarbons (CHC) to distinguish between classes of individuals. Typically, investigations of nestmate recognition report on the individuals' response by measuring the level of aggression, and on the CHC profile of the entire individual. We examined, in Australian meat ant (*Iridomyrmex purpureus*) workers, whether there was an association between where an opposing individual worker directed its antennation behaviour and any CHC differences of different body parts. We discovered that more than 90% of all antennation are directed to antennae and legs, with workers directing more attention to the legs when they encounter nestmates and to the antennae of non-nestmates. Chemical analyses (GC-FID and GC-MS) of CHC on the antennae, head, legs and abdomen of ants from six colonies revealed striking differences between each body part. These differences are due to the concentration rather than type of chemicals, and between-colony CHC profiles vary according to the body part. Principle component analysis (PCA) showed that antennal signals provide better colony discrimination than other body parts. These results suggest that *I. purpureus* decorate different body parts with different chemical components from various glands, and that these chemicals most likely convey different signals.