

**OR402***Larval learning affects adult nest-mate recognition in the ant *Aphaenogaster senilis**Lisa Signorotti, Pierre Jaisson, **Patrizia d'Ettorre**

Prenatal olfactory learning has been demonstrated in a wide variety of animals, where it affects development and behaviour. Young ants learn the chemical signature of their colony. This cue-learning process allows the formation of a template used for nest-mate recognition in order to distinguish alien individuals from nest-mates, thus ensuring that cooperation is directed towards group members and aliens are kept outside the colony. To date, no study has investigated the possible effect of cue learning during early developmental stages on adult nest-mate recognition. Here, we show that odour familiarization during pre-imaginal life affects recognition abilities of adult *Aphaenogaster senilis* ants, particularly when the learning process occurs during the first larval stages. Ants eclosed from larvae exposed to the odour of an adoptive colony showed reduced aggression towards familiar, adoptive individuals belonging to this colony compared with alien individuals (true unfamiliar), but they remained non-aggressive towards adult individuals of their natal colony. Moreover, we found that the chemical similarity between the colony of origin and the adoptive colony does not influence the degree of aggression, meaning that the observed effect is likely to be due only to pre-imaginal learning experience. These results help understanding the cognitive processes underlying efficient recognition systems and point to the neglected importance of pre-imaginal learning in social insects.