

**OR330**

*The social side of honeybee learning: what it tells us*

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Chemical communication in honeybees (*Apis mellifera*) is remarkably sophisticated and plays a central role in the success and survival of honeybee colonies. It was discovered relatively recently that some of the chemical signals (pheromones) used by honeybees modulate the learning behaviour of this highly social insect. Aversive learning in young worker bees, for example, can be suppressed by pheromone released by the honeybee queen (Vergoz V, Schreurs HA, Mercer AR. (2007) *Science* 317:384-386), and alarm pheromone released by guard bees has been shown to inhibit appetitive learning in foragers (Urlacher E, Francés B, Giurfa M, Devaud J-M (2010) *Front Behav Neurosci* 4:157). These studies highlight the need for a better understanding of honeybee learning in a social context. This talk will outline recent attempts to explain why the effects of pheromones on learning performance in honeybees are age- and state-dependent. It will outline what is known about mechanisms that support pheromone modulation of learning behaviour in the honeybee, and it will discuss the possible adaptive value of social modulation of learning in this insect. Finally, it will consider whether a better understanding of pheromone communication can offer novel insights into cellular and molecular mechanisms that underpin learning and memory formation in the honeybee. Supported by grants from the Royal Society of New Zealand Marsden Fund (UOO0910 and UOO1207)