

## Introductory Remarks to Symposium 17

## Experience-dependent plasticity in chemosensation

Ricarda Scheiner and Sylvia Anton, Würzburg and Angers (France)

Chemosensory experience is well-known to shape animal behaviour, and major advances have been made in the last few decades to understand the neuronal mechanisms underlying learning and memory. The vast majority of this research has been performed on model organisms such as rodents, the fruit fly and honeybees, but evidence for learning abilities has also been found in many non-model organisms. The time-scales over which experience influences the nervous system and behaviour are highly variable: long-lasting influence of various environmental factors can modify neural networks and behaviour elicited by chemosensory signals both during development and in adult animals. But a brief association of an odour with an attractive or aversive gustatory stimulus can also lead to significant anatomical and physiological changes within the central nervous system and result in behavioural adaptation to the experienced stimuli. In this symposium we present the latest advances on structural and functional modifications of the insect and vertebrate nervous systems caused by chemosensory experience. In the first part, speakers will demonstrate how environmental factors experienced during development or during adult life induce anatomical and functional plasticity in primary and secondary olfactory centres within the brain in social insects and rodents. In the second part the role of dopaminergic modulation of central nervous circuits in the extinction or consolidation of olfactory memory in the fruit fly will be presented. Finally peripheral processing of gustatory and olfactory signals involved in learning in social insects will be highlighted.

## Symposium 17

Thursday, March 23, 2017  
14:30 - 16:30, Lecture Hall 102

Chairs: Ricarda Scheiner and Sylvia Anton,  
Würzburg and Angers (France)

- 14:30 **Opening Remarks**
- 14:35 Claudia Groh, Würzburg  
DEVELOPMENTAL AND ADULT NEURONAL PLASTICITY OF OLFACTORY SYNAPTIC MICROCIRCUITS IN THE MUSHROOM-BODY CALYX OF SOCIAL HYMENOPTERA (S17-1)
- 15:00 Jean-Christophe Sandoz, Gif-sur-Yvette, France  
SOCIAL CONTACT AS A REINFORCEMENT IN OLFACTORY LEARNING IN HONEYBEES (S17-2)
- 15:25 Scott Waddell, Oxford, UK  
RE-EVALUATION OF LEARNED INFORMATION IN *DROSOPHILA* (S17-3)
- 15:50 Geraldine Wright, Newcastle upon Tyne, UK  
A TEMPORAL CODE FOR SUGAR CONCENTRATION FROM THE GUSTATORY NEURONS OF BUMBLEBEES (S17-4)
- 16:15 Hanna Cholé, Gif-sur-Yvette, France  
ANTENNAL RESPONSE TO ODORANTS WITH INNATE OR ACQUIRED HEDONIC VALUES IN HONEY BEES (*APIS MELLIFERA*) (S17-5)
- 16:25 **Concluding Remarks**