

**OR152***Bumblebee immune response upon faecal transplant and microbiota community structure***Kathrin Napflin**, Paul Schmid-Hempel

Microbial symbionts are suspected to closely interact with the host immune system. Recently, their role in mediating levels of resistance in host-parasite interactions has thus come into focus. So far, however, experimental investigations of the impact of the microbiota on the host immune system, and vice versa, are virtually absent. In the bumblebee, *Bombus terrestris*, the gut community is socially acquired by callows, likely via the uptake of faeces from nest mates. Experiments demonstrated that the microbiota provides a protective function and mediates the specificity of the host interaction with the trypanosome gut parasite, *Crithidia bombi*. In this study, we investigated how faecal transplants of 'resistant' and 'susceptible' microbiota into microbe-free worker bees affect the activity of the host immune system. Following the transplant, we measured the primary expression response of a number of candidate genes in order to disentangle the importance of host versus microbiota-mediated effects on the host immune response. Although both affected the outcome, we found a major effect of the host resistance type (i.e. the genotypic background of the receivers) compared to the resistance type of the donors, i.e. the transplanted gut microbiota community. This result underlines the importance of host genotype; most likely, the host genotype so exerts selection upon the establishing gut community. In a second step, we discuss implications of these gene expression patterns (focusing on antimicrobial peptide and melanisation) in the context of the microbiota community of the two resistance types.