



Genetic instruction of behaviors in honeybees?

Author(s): Martin Beye, Sven Kamps , Vivien Bauer , Martin Beye

Institution(s): Genetics, University of Duesseldorf, Germany ; Genetics, University of Duesseldorf, Germany ; Genetics, University of Duesseldorf, Germany ; Genetics, University of Duesseldorf, Germany

Our understanding of how genes can “hard-wire” distinct and sophisticated social behaviors during development in the brain is still limited. Honeybees (*Apis mellifera*) offer an interesting example in which worker bees, queens and males develop from essentially the same genome, but give rise to different morphs displaying distinct sets of behaviors. Queens and male display behaviors devoted to reproduction. Worker bees care the brood, collect food and maintain the colony that involve many other sets of sophisticated behaviors. Development into either male, queen and worker bees is determined by a genetically encoded sex- and nutrient based caste-determining signal. However, we have little knowledge of the further downstream genes that specify the “hard-wiring” of the distinct behaviors in the brain. I will report on our progress in studying genes involved in this process. The data rely on recently developed genetic manipulation methods and computer-based techniques that quantify behaviors.