



Genes and genetic pathways in bees: from solitary to social behavior

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The evolution of sociality is one of the most fascinating topics in evolutionary biology. Bees are excellent organisms to investigate the origin and evolution of sociality. Although most bees are solitary, eusociality has emerged more often in bees than in other social insects. Bees display a myriad of levels of social organization from the solitary to the highly eusocial. Eusociality is seen in species belonging to the Halictidae and Apidae families, and a comparative study of different species varying their social organization in the same group is particularly interesting. Bumble bees, stingless bees and honey bees belong to eusocial lineages in Apidae. Differences on reproductive physiology among these bees as well as immune response to different pathogens that they may face are interesting fields to study. Bee genomics has contributed to important insights into molecular mechanisms of bee social evolution. However, genomic studies alone provide little information about gene functions and the responses to varied physiological aspects. Thus, the integration of genomics, functional and physiological studies is mandatory to better understand social insect biology. In this talk, I will present insights into molecular basis underlying reproduction and immunity in bees. Financial support: CNPq and FAPESP Proc. Nr. 2016/06657-0