VolkswagenStiftung

advanced phase Postdoc "Corporate and individual immunity - understanding their relationship in a non-social insect, Tribolium castaneum"

Initiative: Evolutionsbiologie (beendet)

Bewilligung: 31.03.2010

Laufzeit: 5 Jahre

Projekt-Website: http://www.uni-giessen.de/cms/fbz/fb09/institute/ipaz/abt/ento/mit/wimi/joop

Tribolium beetles excrete Quinones into their flour environment. Quinones show broad antimicrobial activity, and therefore can be considered as an "external" immune defence. Previously Dr. Joop could demonstrate that the production of Quinones is traded-off with the internally acting innate immune system, and that the excretion of Quinones comes at the cost of decreased larval survival. Based on these findings, the proposed project aims at an in-depth analysis of the evolution and function of external immunity. Four main questions will be addressed: (i) Does Quinone excretion enhance beetle fitness through manipulation of microbial diversity in the flour and the beetle gut? (ii) What are the cause and consequences of the trade-offs between external immunity and other aspects of immunity? (iii) How is Quinone production regulated? (iv) Does external immunity represent a true corporate trait that benefits a group of unrelated individuals? This project is expected to shed new light onto the evolution of immune defence.

Projektbeteiligte

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