When your host shuts down: Host-microbiome interactions in parasitoid wasp larvae

Jessica Dittmer
Robert M. Brucker

Video Byte

Keywords: diapause, gut microbiota, metabolism, nutrition, symbiosis, *Nasonia vitripennis*, larvae, nutrient allocation, host, life cycle, insects, Microbiome

Posted Date: October 14th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-968269/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

The bacterial symbionts of insects play a critical role in their hosts' nutrition and development. But what happens when your host shuts down? To find out, researchers examined larvae of *Nasonia vitripennis*, a wasp that undergoes a hibernation-like state called diapause. They compared wasp larvae raised to be bacteria-free, or axenic, with conventionally raised larvae. During diapause, the axenic larvae accumulated less weight and had consistently lower glucose and glycerol than the conventionally raised larvae, suggesting the microbiome played an important role in nutrient allocation and mobilization. Undergoing diapause during larval stages also altered microbial composition in both larvae and adult wasps. Taken together, these results underscore the importance of considering microbiome effects when studying diapause.