Eating Cactus Takes Guts

Exploring the contributions of host evolutionary history and diet in shaping the gut microbiota of cactophilic flies

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Background

Gut microbial communities often provide functions that have significant implications for their host's fitness. However, understanding how a host's gut microbiome has been shaped by its evolutionary history can be difficult because **the influence of diet can be lesser than, equal to, or greater than host genetic background.**

Flies in the genus *Drosophila* have been previously used as model systems for understanding various factors pretaining to gut microbial community shape and function. We propose that the various species of **cactophilic *Drosophila* native to North America could be a powerful comparative model system** for discerning the contributions of host evolutionary and diet in shaping host gut microbial communities. In this study, we characterize the bacterial gut microbiome from five cactophilic *Drosophila* species and compare their diversity and composition to *D. melanogaster*.

Questions

Study Design

Alpha-Diversity Comparisons

Beta-Diversity: Compositional and Structural Comparisons