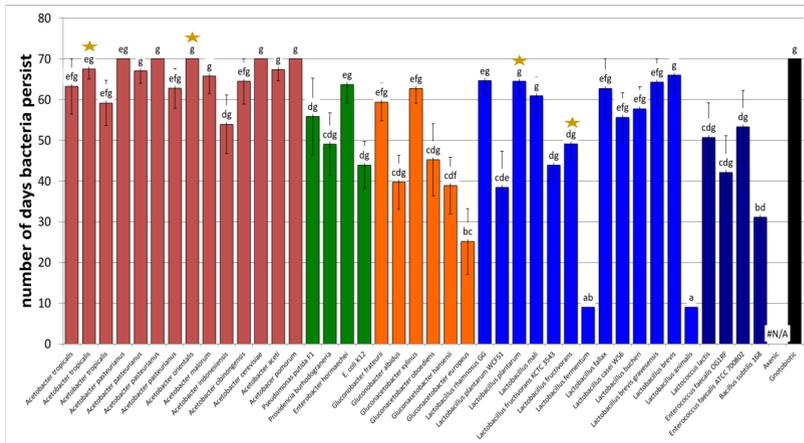


The Role of Bacterial Genotype in Persistence of the Microbiota of *Drosophila melanogaster*



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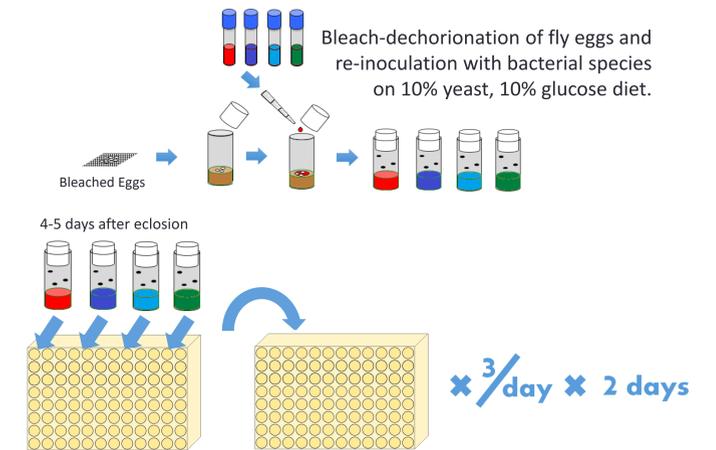
WHY?



PERSISTENCE IN THE LITERATURE

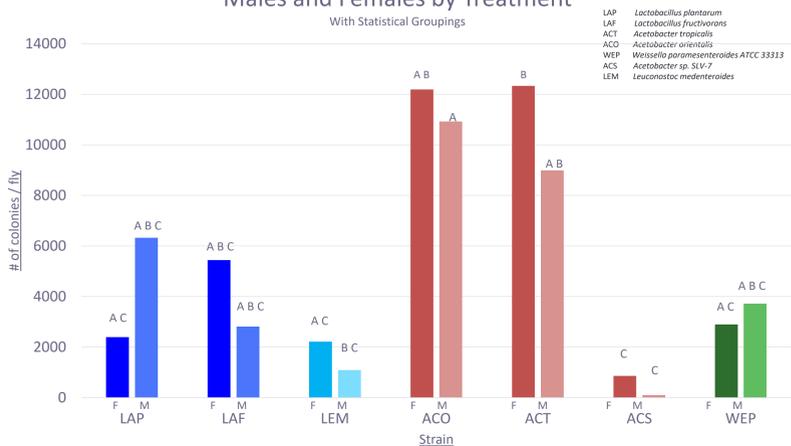
- Drosophila melanogaster* is a model species for genetic studies that has many beneficial interactions with its microbiota (Pais 2018).
- The microbiome of *D. melanogaster* plays a vital role in the health of *D. melanogaster*, and is known to have many diverse effects on the *D. melanogaster* phenotype and behavior, including lifespan, fecundity, and pathogenic resistance.
- The microbiome is influenced by diet in both lab and wild *D. melanogaster*, and also a continuous uptake of diet can help to establish a microbiome (Blum 2013).
- However, how and why the microbiome comes to associate with the host *D. melanogaster* remains poorly defined. Therefore, the goal of this study is to extend the previous work by defining the bacterial genetic factors that influence persistence of the microbiota of *D. melanogaster*.

HOW?



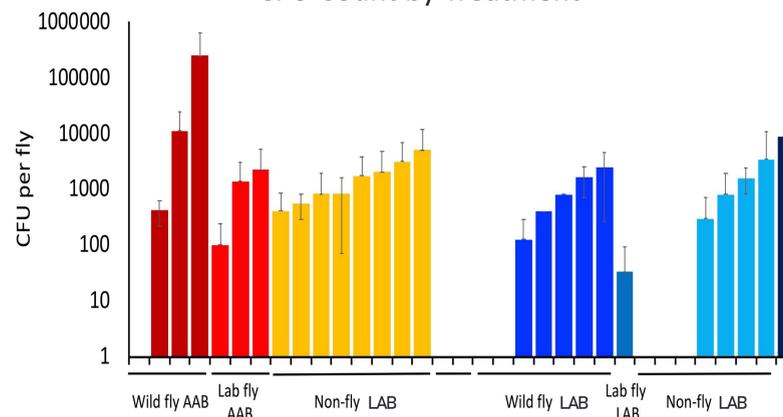
PERSISTERS AND NON-PERSISTERS

Males and Females by Treatment
With Statistical Groupings



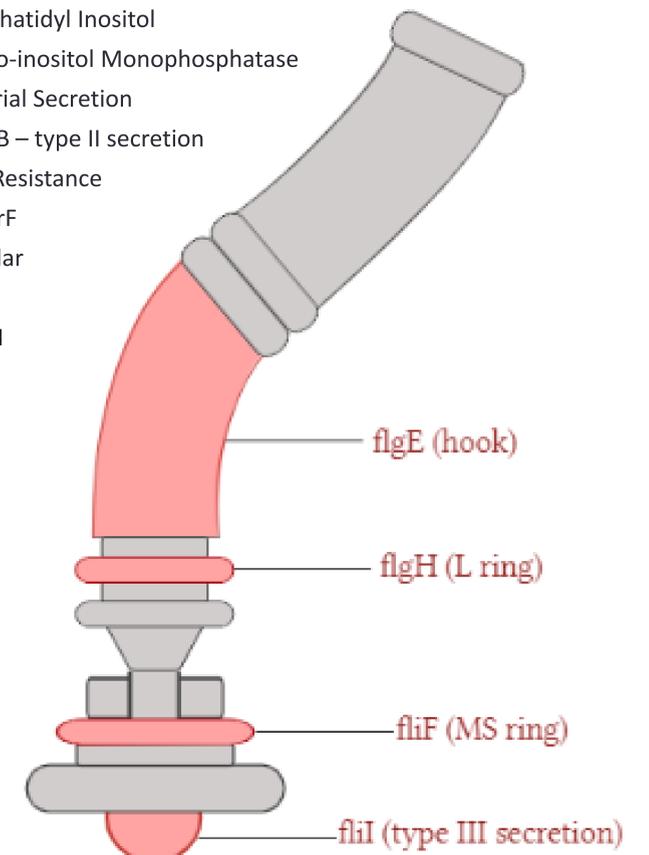
PERSISTENCE BY TREATMENT

CFU Count by Treatment



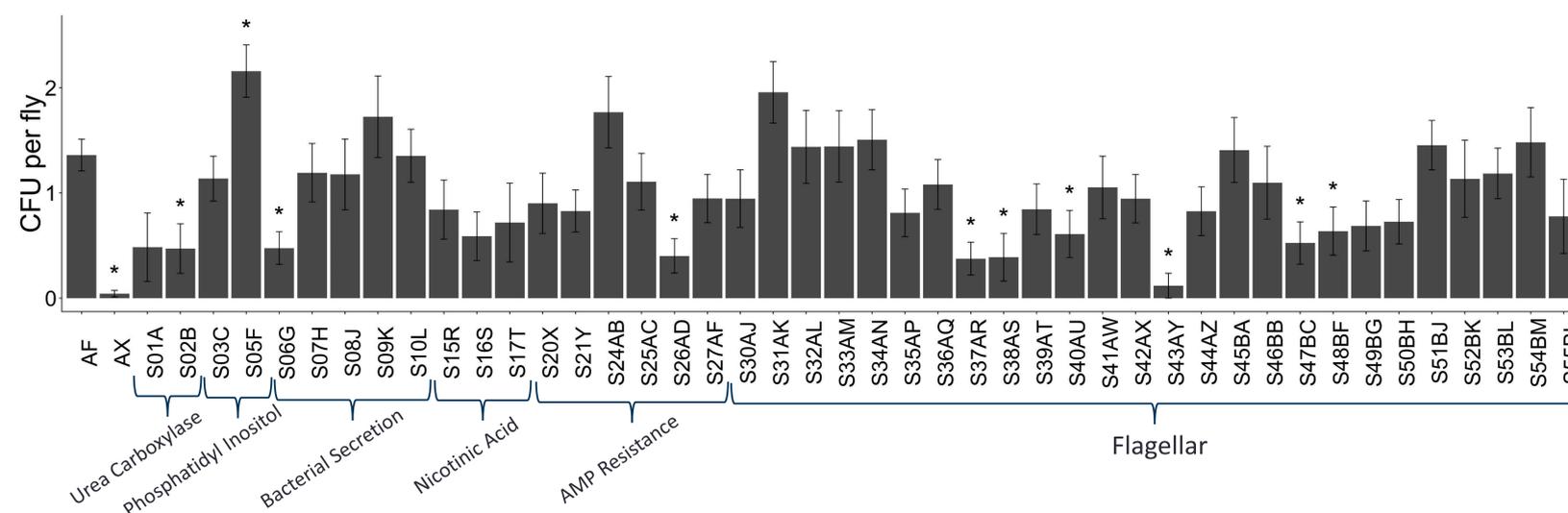
SIGNIFICANT GENES

- Urea Carboxylase
 - Urea Carboxylase
- Phosphatidyl Inositol
 - Myo-inositol Monophosphatase
- Bacterial Secretion
 - secB – type II secretion
- AMP Resistance
 - mprF
- Flagellar
 - flgE
 - flgH
 - fliF
 - fliI



MUTANTS

CFU Count by Bacterial Mutant



LITERATURE CITED

- Blum, J., C. Fischer, J. Miles, J. Handelsman, 2013 Frequent Replenishment Sustains the Beneficial Microbiome of *Drosophila melanogaster*. *Mbio* 4(6): 1-8
- Pais, I., R. Valente, M. Sporniak, L. Teixeira, 2018 *Drosophila melanogaster* establish a species-specific mutualistic interaction with stable gut-colonizing bacteria. *PLOS Biology* 16(7): 1-45