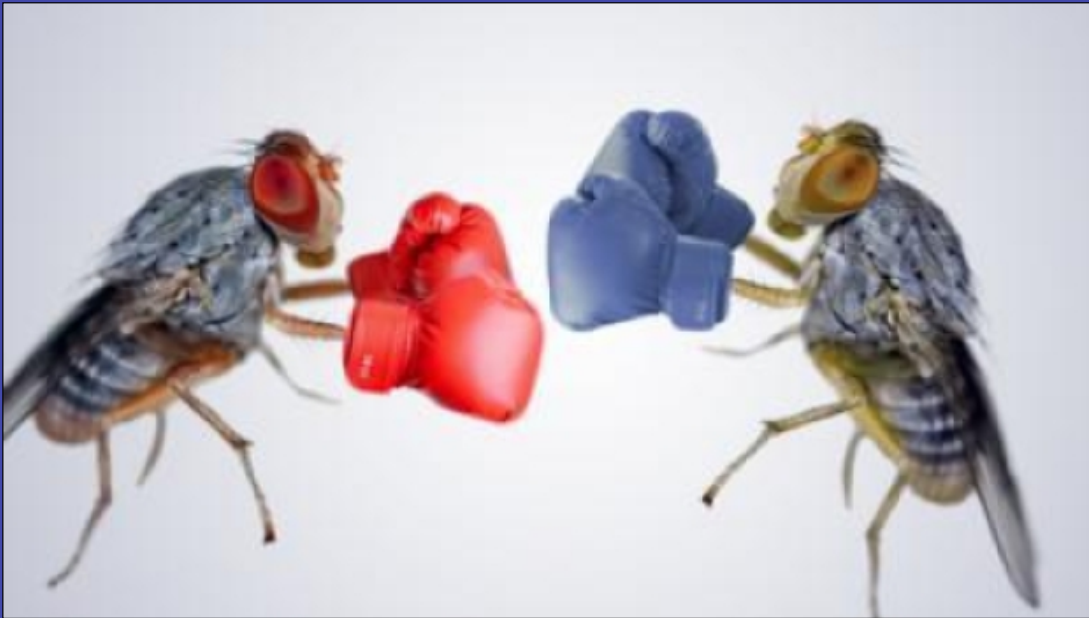


Drunk Fruit Fly Fight Club

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Reed College Biology 342

How is aggression among conspecifics altered by selection for alcohol sensitivity?



Drosophila melanogaster males from different lines:

- Wild Type: Portland population
- E1: alcohol resistant
- R2: alcohol sensitive

HOW WILL ALCOHOL CONSUMPTION
AFFECT AGGRESSIVE BEHAVIOR IN
ARRANGED INTERACTIONS IN THE ARENA ?

Experimental Design:

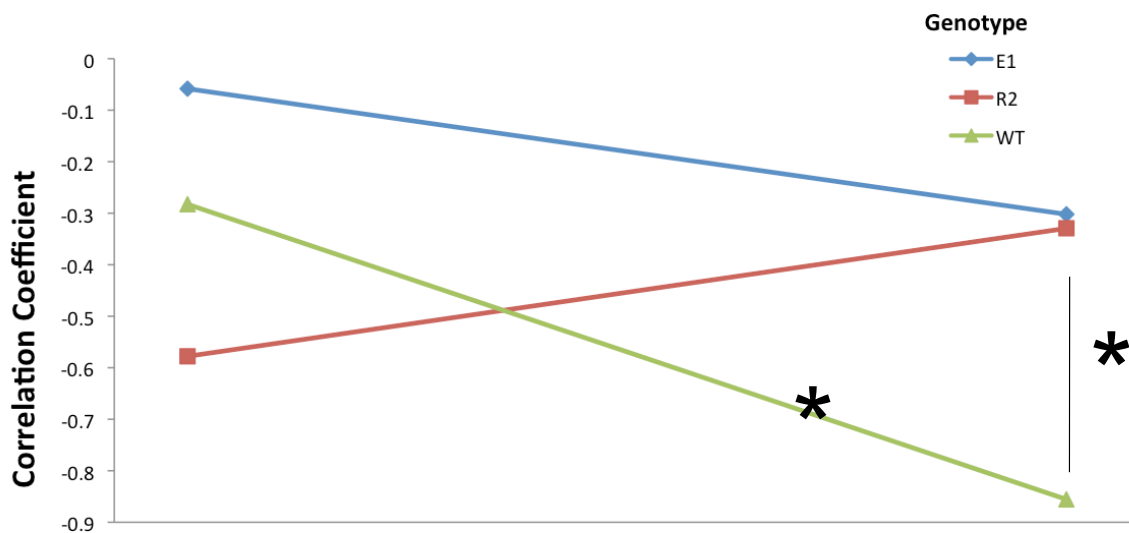
The Arena



- Revised with Jay Ewing using *lasers*
- Kravitz Lab aggression ethogram utilized
- 6% sucrose OR 6% sucrose + 6% ethanol delivered 10 minutes prior to observation
- 3 minute observation period in arena

Hypothesis: Males selected for different ethanol sensitivities will have different aggression phenotypes depending on ethanol treatment.

The correlation between latency to engage and total aggressive acts observed is different among genotypes depending on ethanol treatment.



0% Ethanol

% Ethanol Treatment

6 % Ethanol

Figure 1. Correlation coefficient calculated from latency to engage and total aggressive acts observed in a 3 minute period between WT, E1, & R2 genotypes 10 minutes post delivery of 6% sucrose without or with 6% ethanol (N = 69; * indicates $p < 0.1$).

Conclusion:

Pleiotropic mechanism is regulating ethanol sensitivity and aggression.

Future Directions:

- Test males from M line (intermittent ethanol exposure in Fry Lab)
- Repeat all experiments with more control conditions
- Test all genotype pairs with water treatment
- Survey consumption qualitatively by adding food coloring dye to all treatments prior to delivery; assay amount consumed in 10 minutes
- Sequence and compare genes of interest (related to alcohol dehydrogenase) from males of all 4 genotypes
- Submit abstract to present at Society for Neuroscience 2015

References:

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Ammons, A., D., Hunt, G., J., 2008. Characterization of honey bee sensitivity to ethanol vapor and its correlation with aggression. *Alcohol.* 42(2): 129-136.

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