Opposing gamete plastic responses to thermal environments in *Tribolium castaneum*

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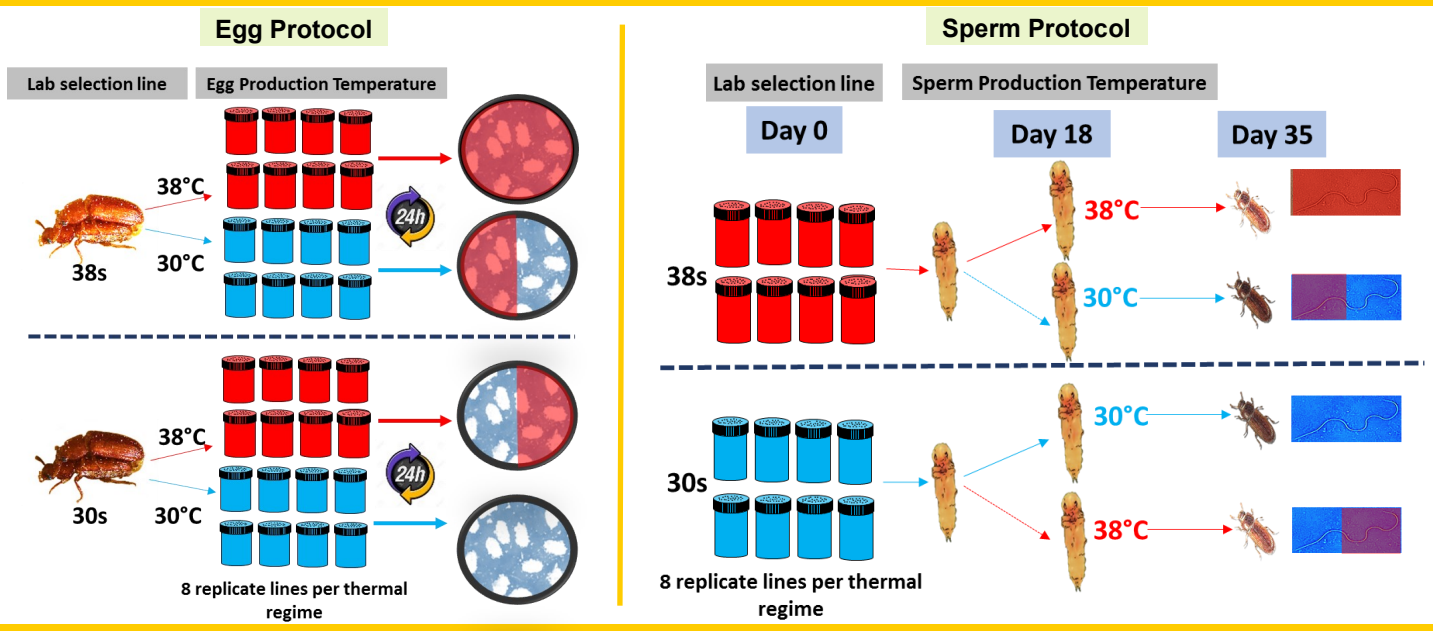
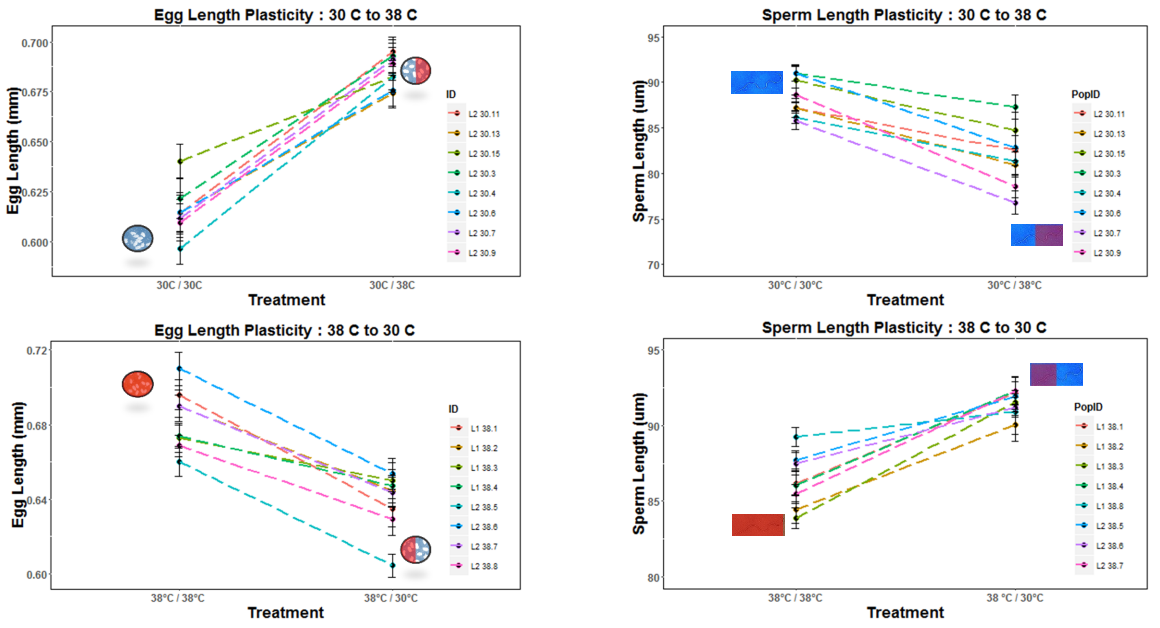
INTRODUCTION

- Female and Male gametes represent good examples of common sexual traits under divergent selection and optima[1,2,3,4].
- Using a poikilothermic insect model, I examine how gamete sizes develop following controlled variation in the thermal environment.
- Resulting plasticity could inform on 1) adaptive significance of gamete size, and 2) degree of intralocus conflict within gamete optima.
- Using 30°C and 38°C lab selection lines following >45 generations of selection, I measure genetic and phenotypic plasticity in sperm and egg sizes when exposed to 30°C and 38°C thermal environments.

METHODS



RESULTS



CONCLUSIONS

- Clear differences in egg and sperm sizes between 30°C and 38°C thermal regimes, however the experimental switches show that this is driven by short-term developmental plasticity[5].
- Gamete responses go in opposite directions:

warmer conditions = bigger eggs but smaller sperm.

- The opposing responses suggest opposing optima[6,7].
- Ongoing work is testing the adaptive significance of variation in both traits for their thermal regime.

REFERENCES

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