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Effects of Heat and Cold Shock on *Drosophila* larval growth and metabolism.

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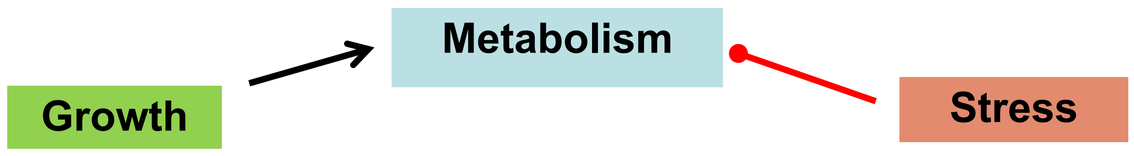
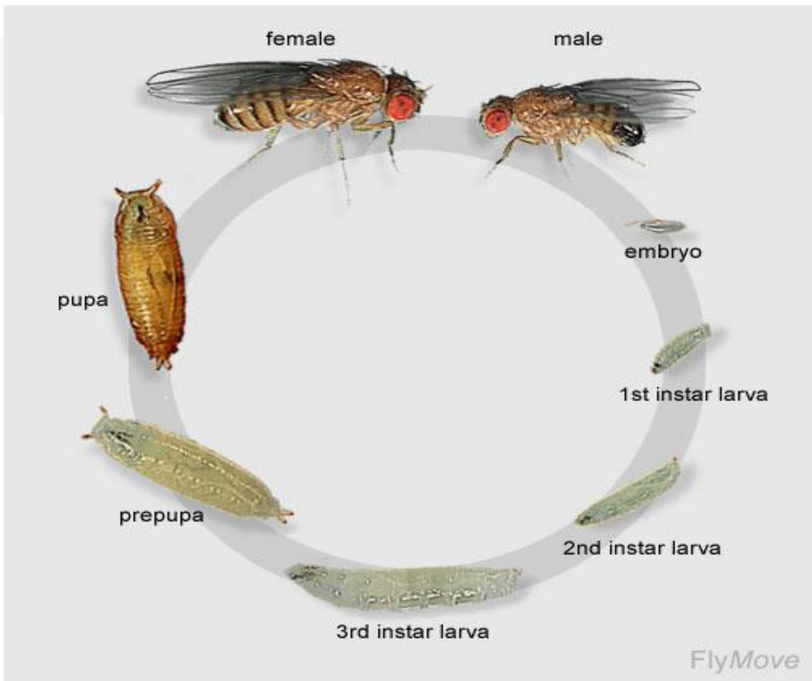
1) Introduction

- Cells and organisms respond to environmental cues by altering their metabolism.
- We are looking at the effects of various stress cues (heat and cold shock) on *Drosophila*.

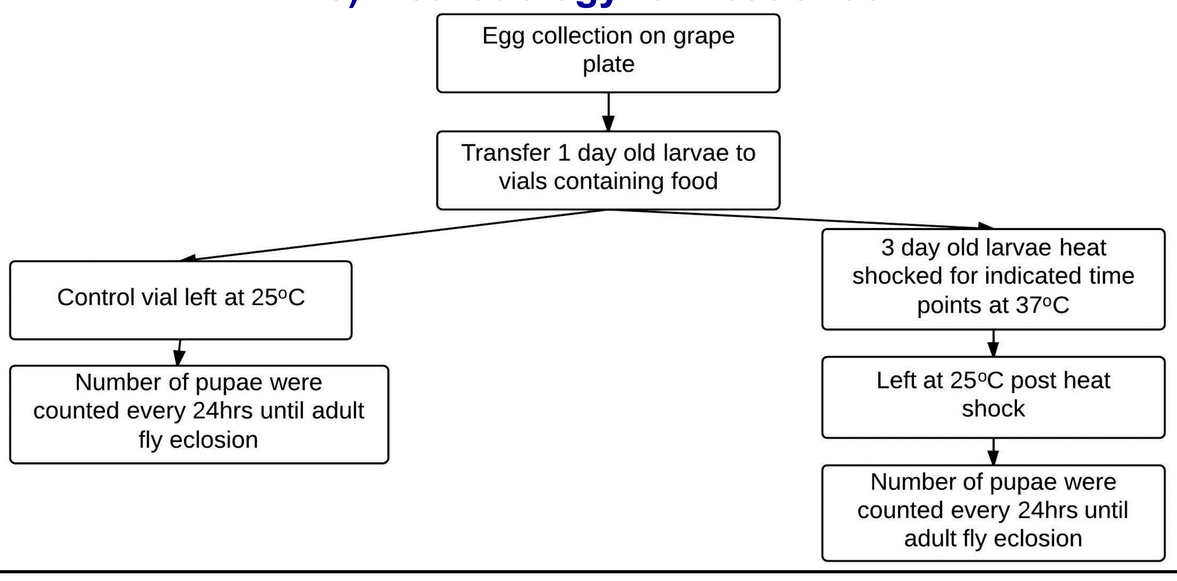


2) *Drosophila* as a model system.

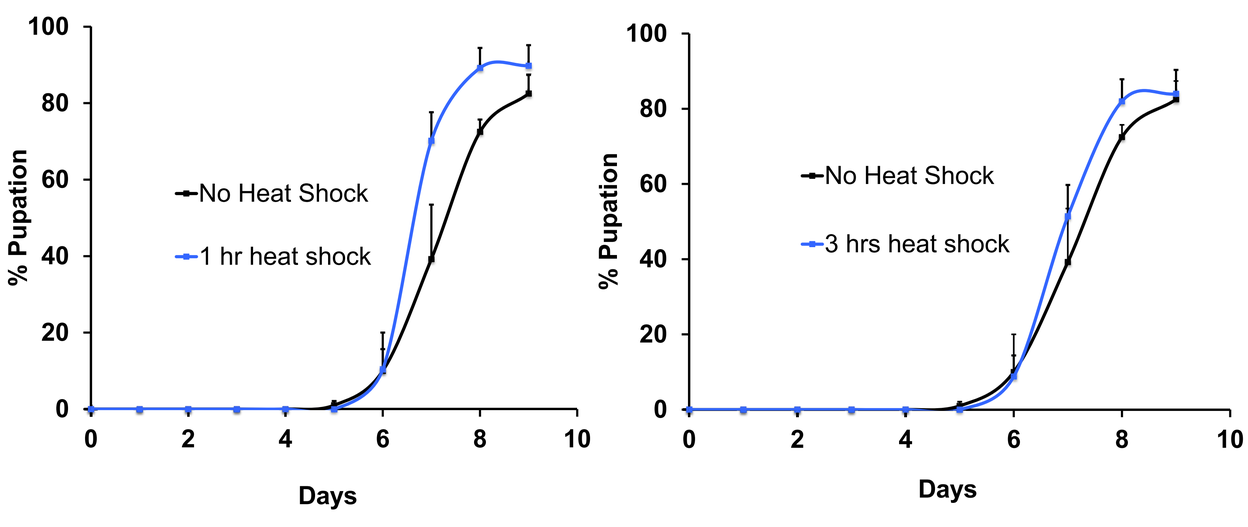
- *Drosophila* is a powerful genetic model system to study cell and organismal responses to growth and stress cues.
- *Drosophila* life cycle is characterized by 4 distinct phases: **embryo, larvae, pupae and adults.**



3) Methodology for heat shock

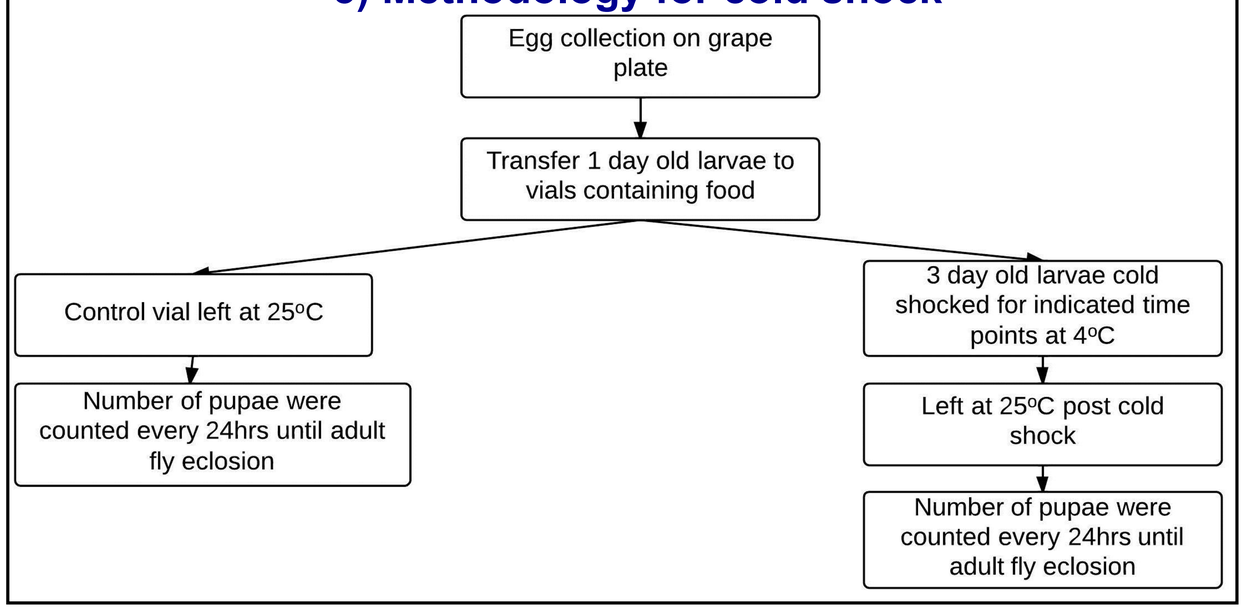


4) Heat shock upto 3 hours has no effect on the developmental timing of *Drosophila.*

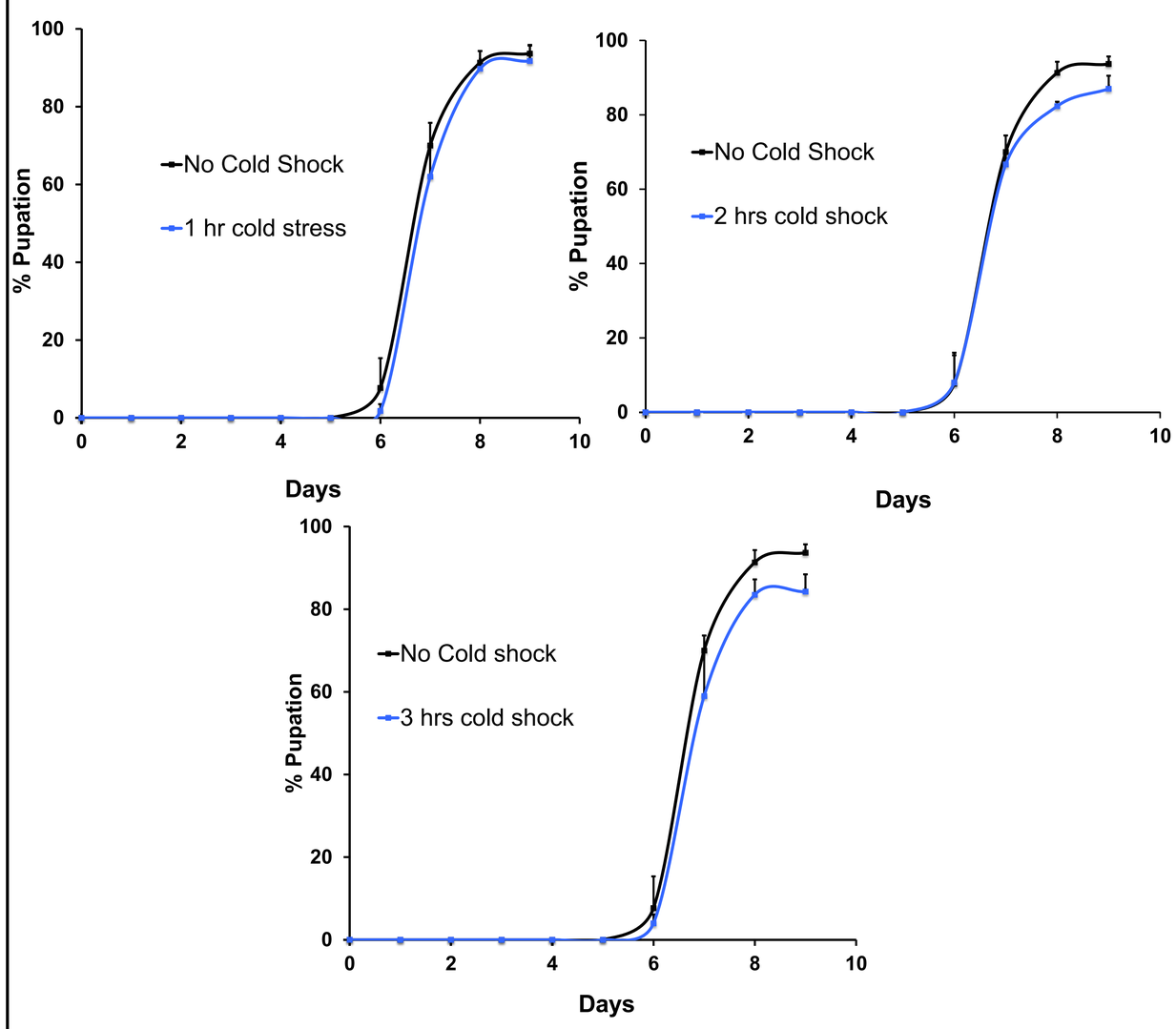


Upto 3 hours of heat shock does not affect the *Drosophila* larval to pupal transition.

5) Methodology for cold shock



6) Cold shock upto 3 hours has no effect on the developmental timing of *Drosophila.*



Upto 3 hours of cold shock does not affect the *Drosophila* larval to pupal transition.

7) Results

- We found that upto 3 hours of heat and cold shock does not affect *Drosophila* larval to pupal transition.

8) Future Directions

- We will examine the effects of higher duration of heat and cold shock on *Drosophila* larval to pupal transition.
- We will examine the effects of additional stressors on *Drosophila* larval to pupal transition.
- We will examine whether stress inhibits ribosome synthesis (or protein synthesis).
- Finally, we will examine if decreased ribosome synthesis couples stress to altered survival.

9) Significance

The significance of this ongoing work is to understand whether reduction of ribosome synthesis (and hence, protein synthesis) is a mechanism to couple stress to altered metabolism.