Finding the Fountain of Youth:

Uncovering the Molecular Mechanisms Controlling Aging in Fruit Flies

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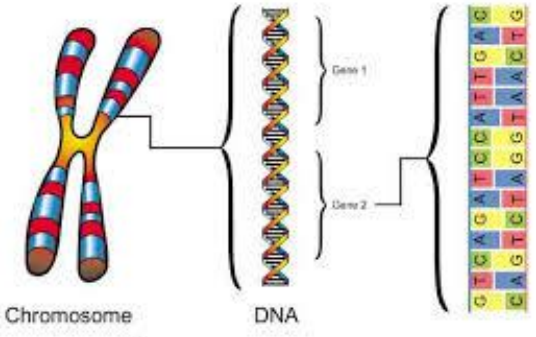
Project Goal: to find genes involved in aging



Enotes.com

Huffingtonpost.com

Drug Testing - - - - - - - - **Anti-Aging Trait**

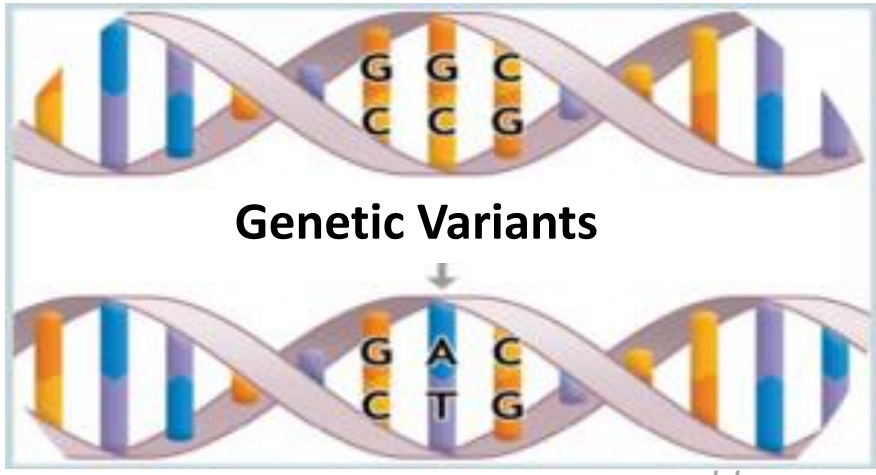
yourgenome.org

The Drosophila Genetic Reference Panel(DGRP)

acluct.org

The DGRP contains 200 fully sequenced imbred lines.

Genome Wide Association Study (GWAS) of our DGRP fly lines



www.rna-seqblog.com

Data → **GWAS** → Genetic Variants

Part One: Looking for differences between good, bad, and non-diapausers

Diapause:
trait that delays aging in harsh environments

10°C → Day 35 → 25°C → Death

Post Diapause Lifespan

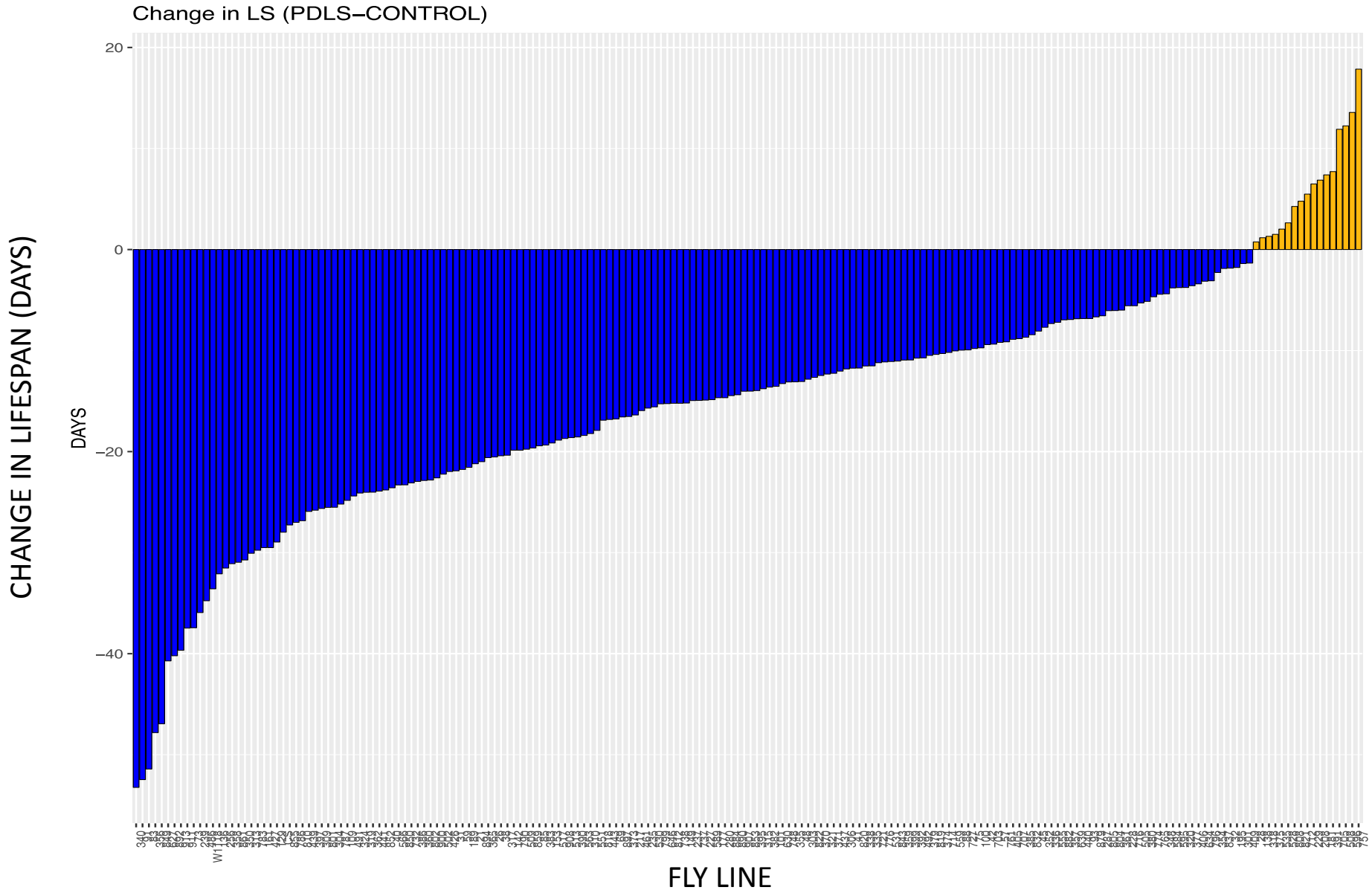
Control:

25°C → Death

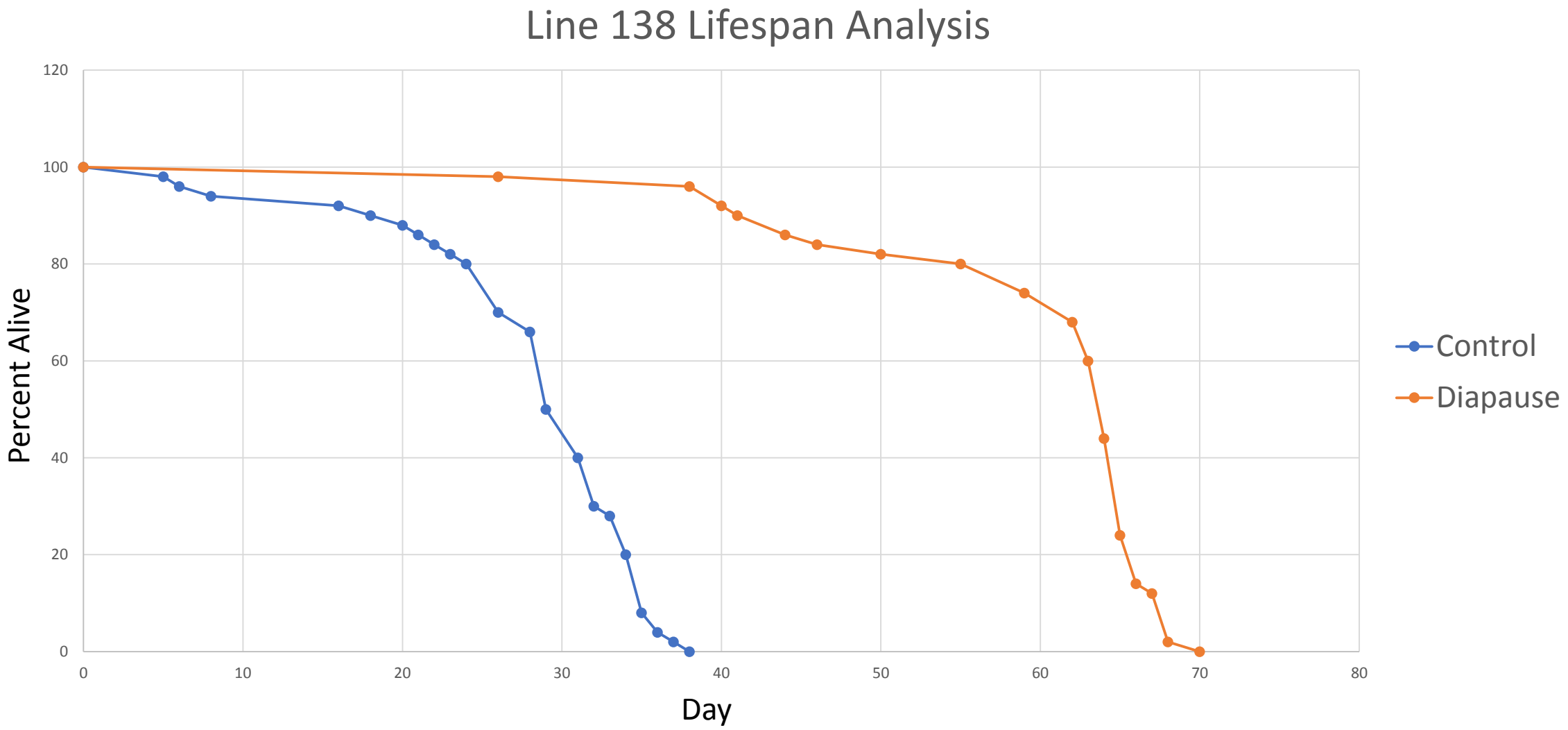
Regular Lifespan

Change in Lifespan = Post Diapause Lifespan – Regular Lifespan

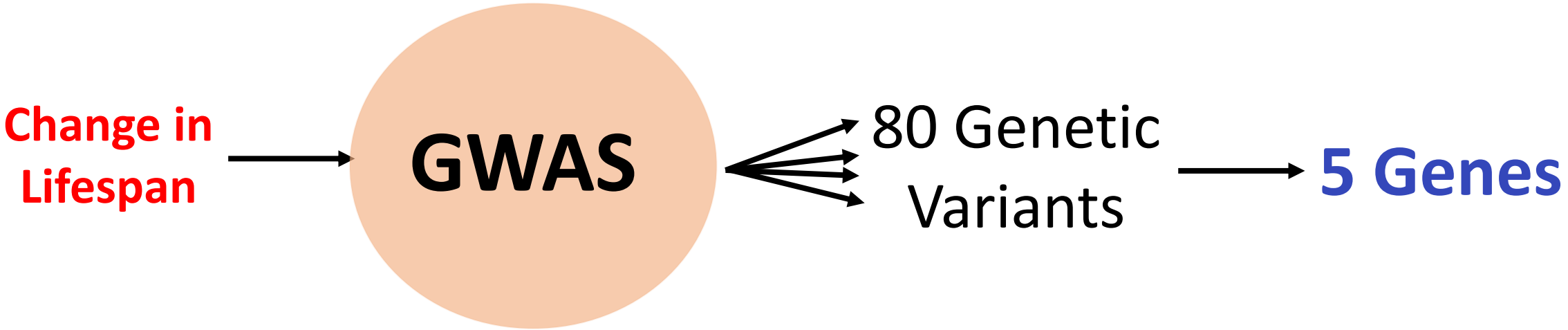
Good Diapausers have a positive change in Lifespan



Lifespan Analysis of a Good Diapauser

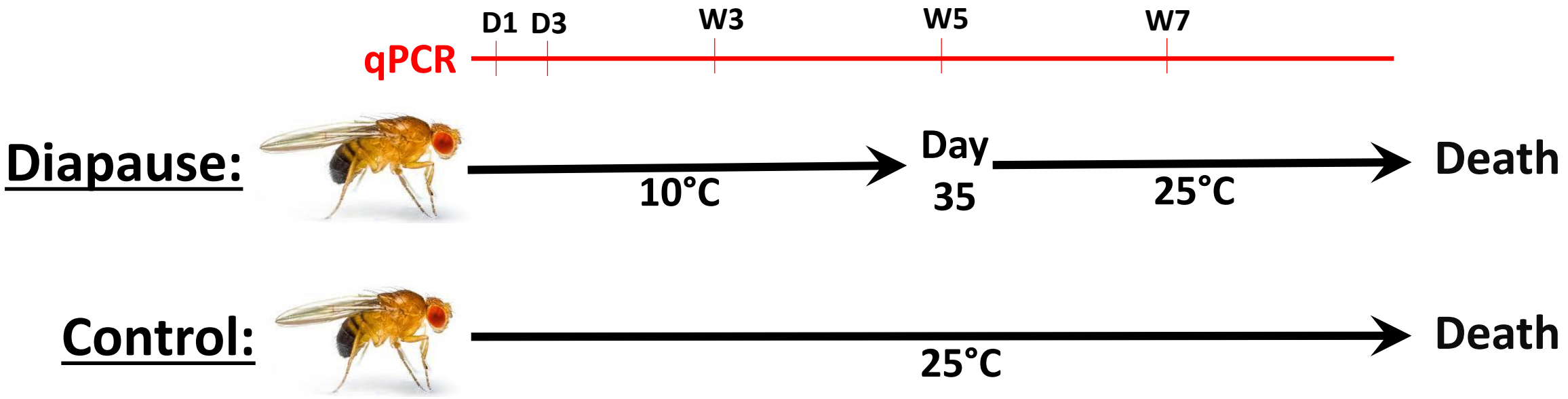


Performing Our Initial GWAS Screening

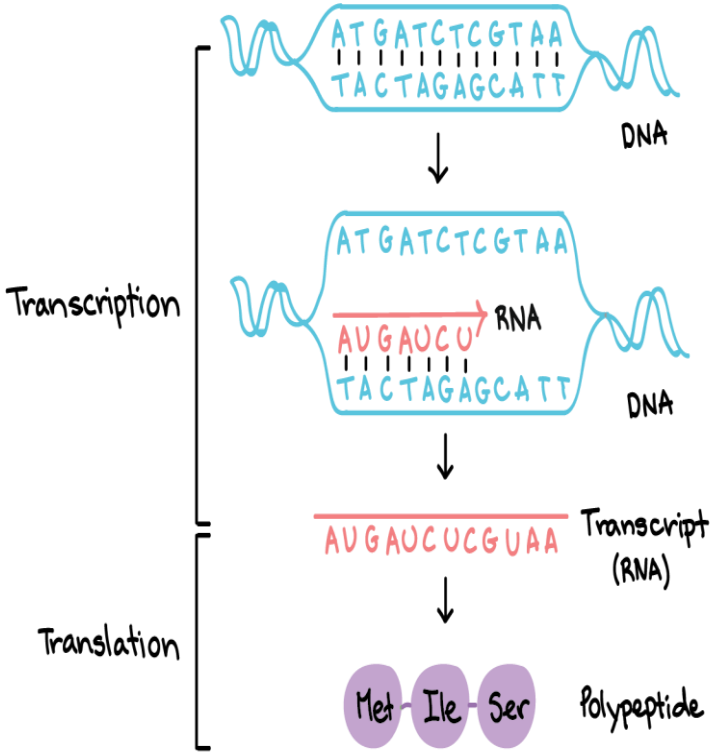


Examining Candidate Gene Expression Using RT-qPCR

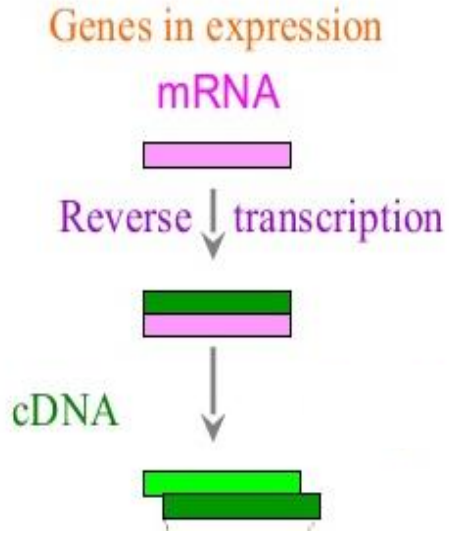
RT-qPCR = reverse transcriptase quantitative polymerase chain reaction



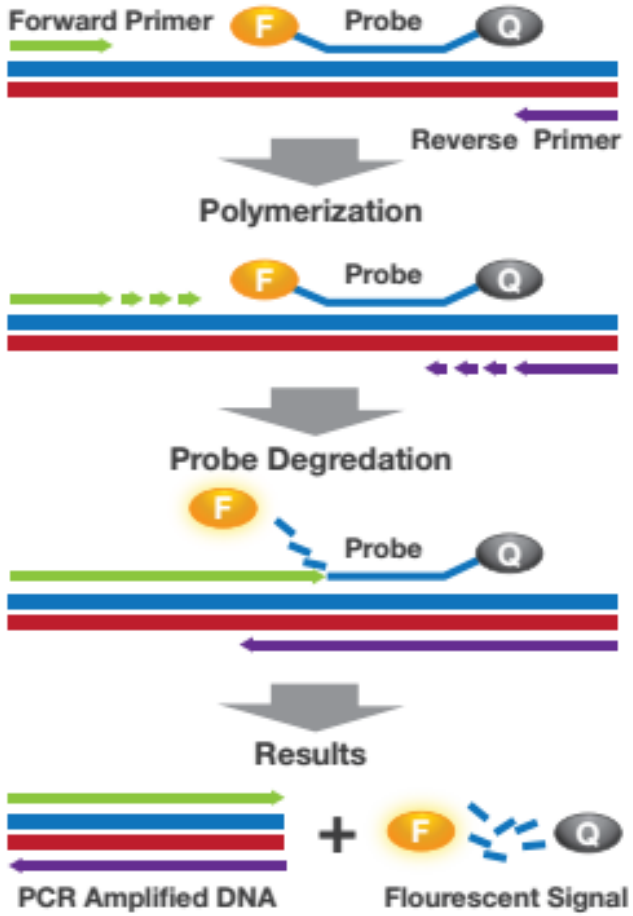
RT-qPCR Analysis Procedure



Normal Protein Production



cDNA Library Creation



Amplification & Fluorescence

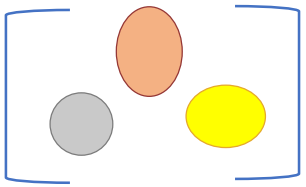
Part 2: Drug Testing

Michael Petrascheck

C. Elegans

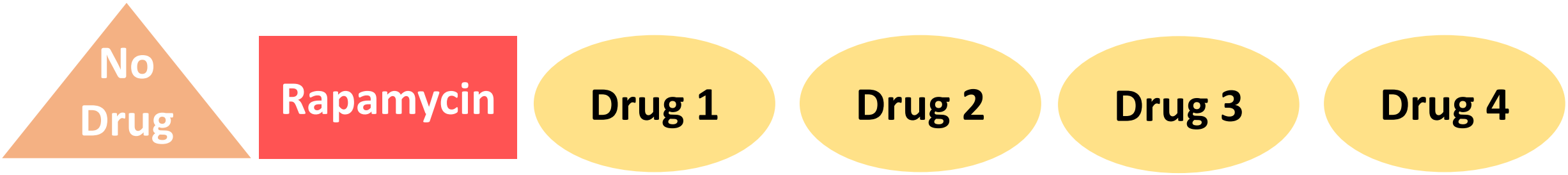
Drosophila Melanogaster

Web.science.uu.nl



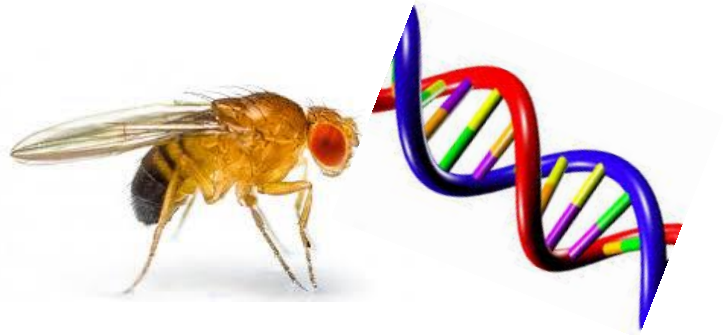
Life span increasing drugs

Benchfly.com



Future Work: Performing GWAS on flies in the Drug Screen

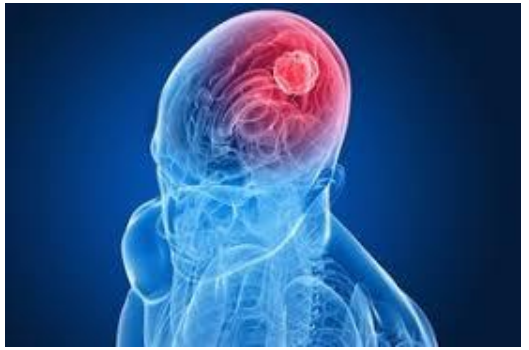
Understanding Aging in Fruit Flies Can Help Understand Aging in Us



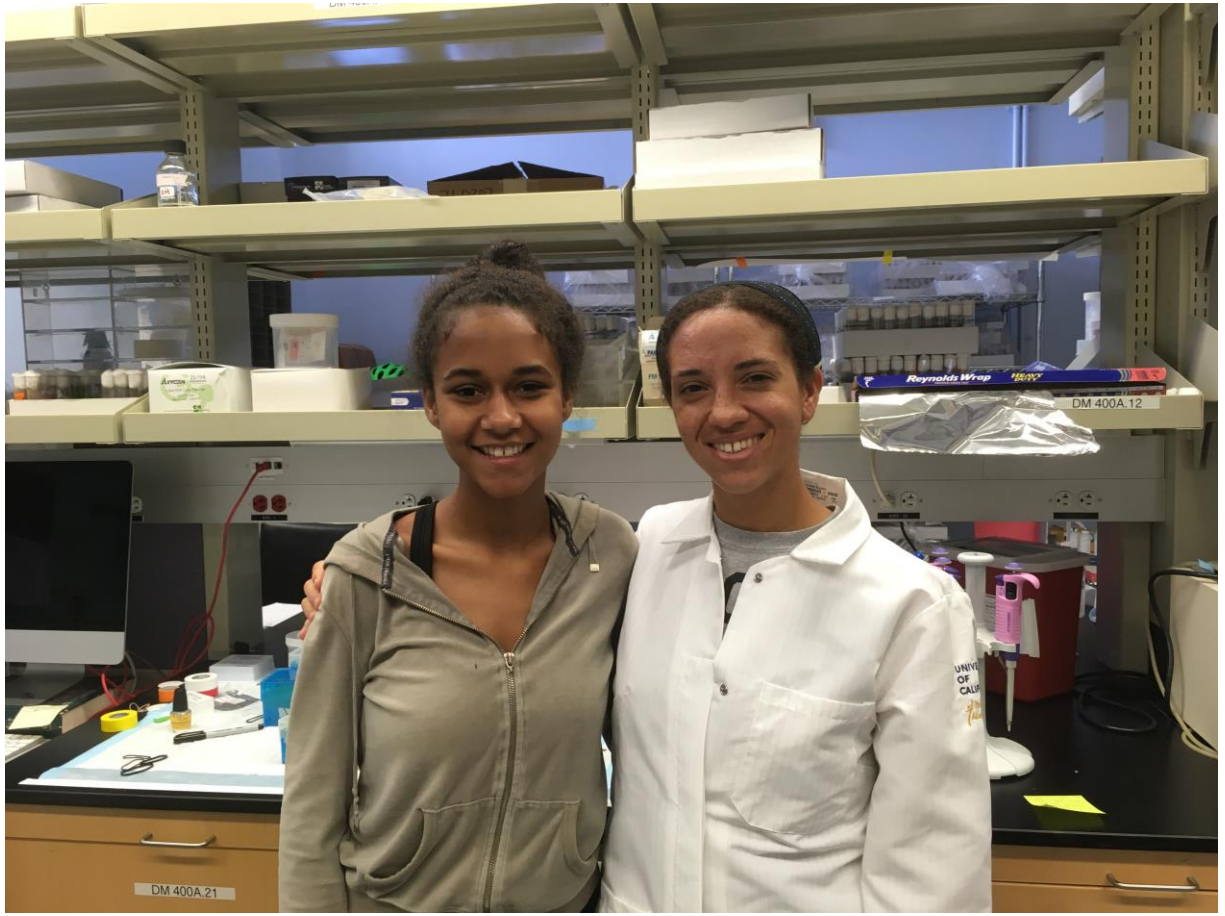
telhai.org

Nia.nih.gov

theodyseyonline.com



Livescience.com

Acknowledgements

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