



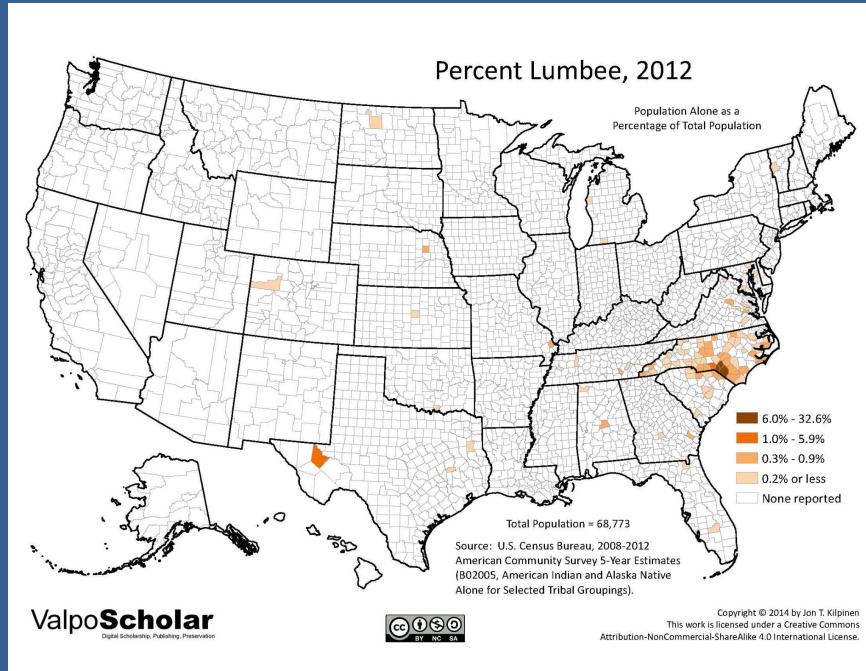
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**Musculoskeletal Effects of Tirasemtiv and *Urtica dioica* on Dstac Gene Knockdown in *Drosophila melanogaster*: Applications Towards STAC3 Disorder (Native American Myopathy)**

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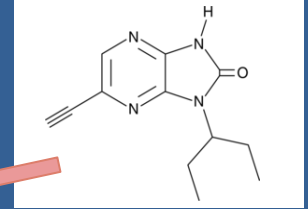
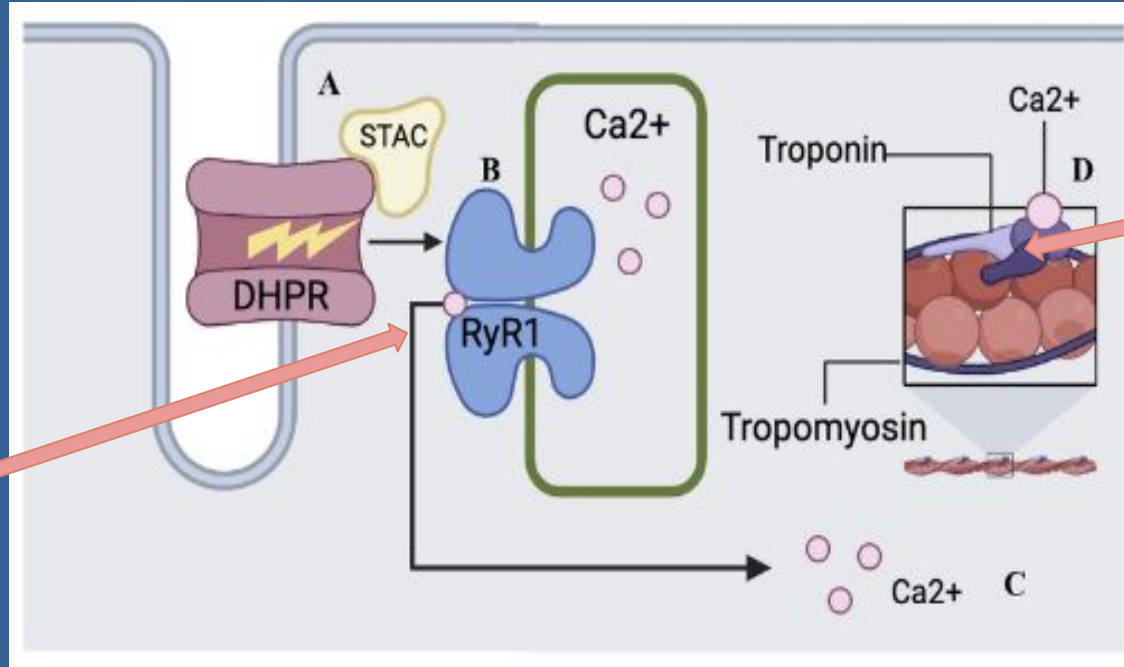
# Background



- *stac3* gene mutation
- Symptoms include poor musculoskeletal development and general muscular weakness
- STAC3 affects 1 in every 5000 within the Lumbee Tribe.

Figure 1. Lumbee Population. Kilpinen, John T. “Percent Lumbee, 2012.” Valparaiso University. <https://scholar.valpo.edu/usmaps/22/>

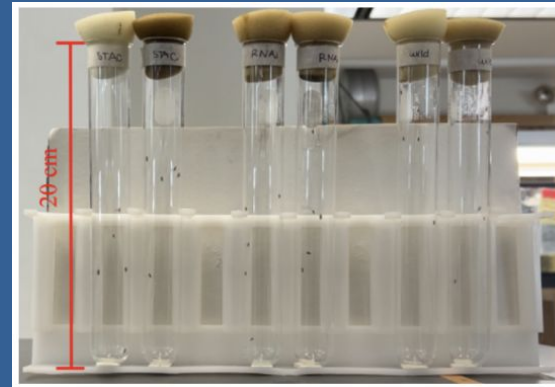
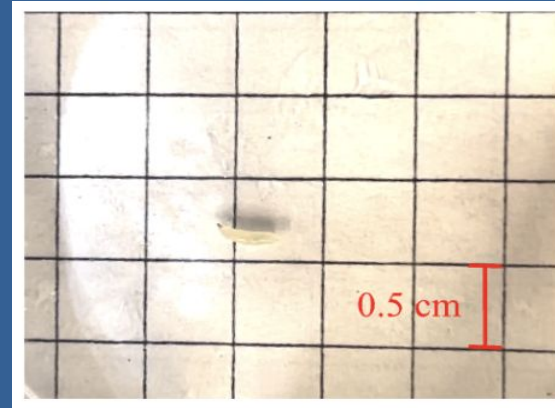
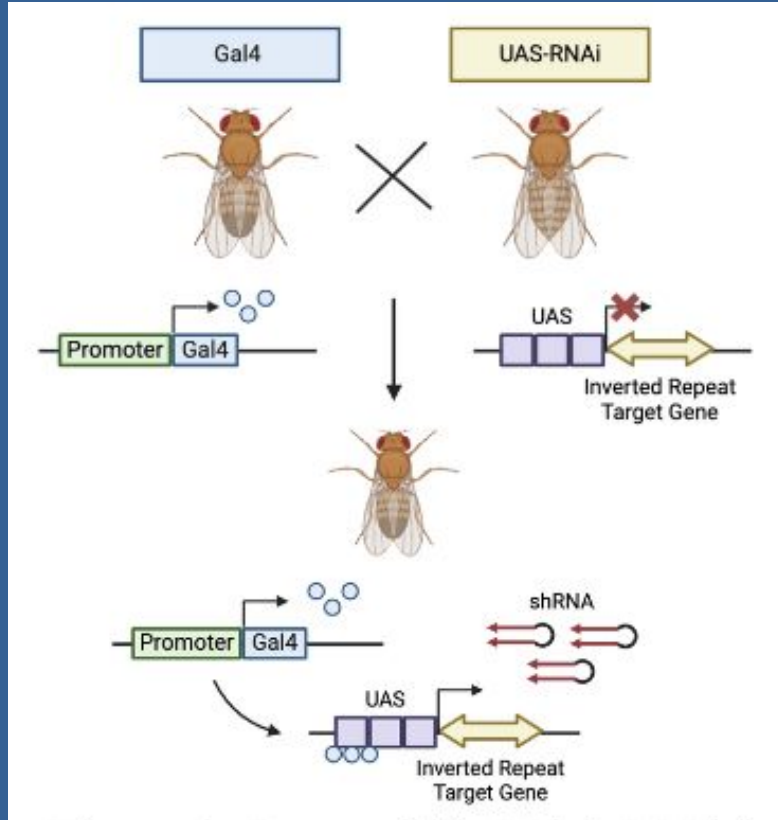
# Excitation Contraction-Coupling Pathway and Treatments



# STAC3 Ortholog Modeling + Assays

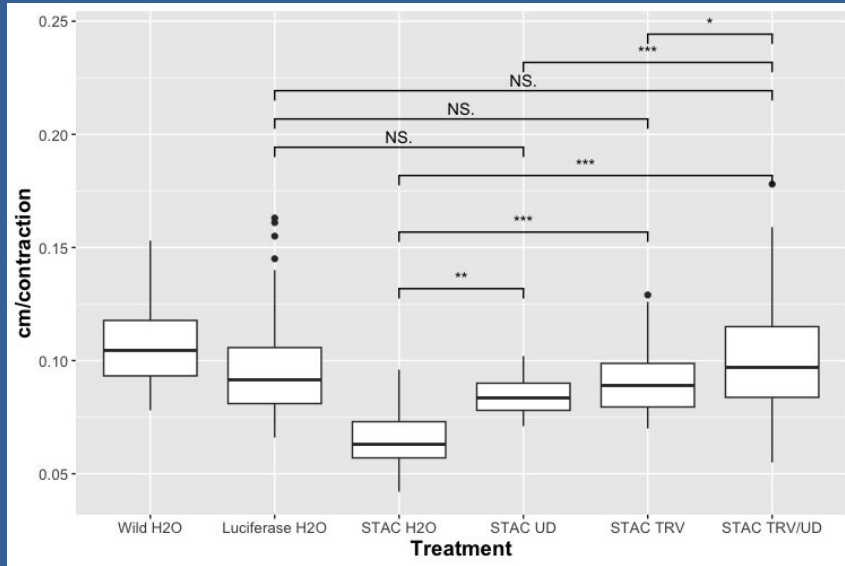


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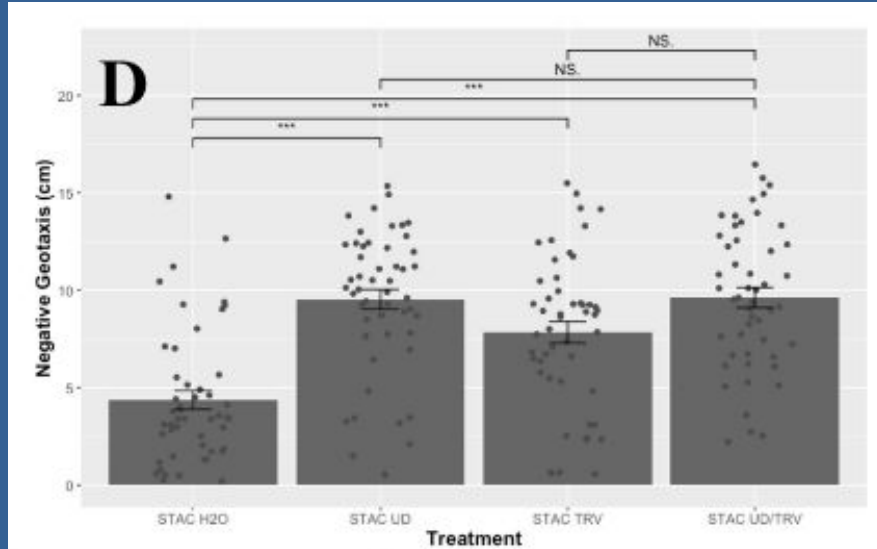


# Larval Treatment Results



- *Urtica dioica* extract displays highest increase in contraction rate of *Dstac* larvae.
- Combined Tirasemtiv and *Urtica dioica* extract has the highest increase of locomotion per contraction in *Dstac* larvae.

# Adult Treatment Results



- *Urtica dioica*, Tirasemtiv, and combined treatment all increase adult motility.
- *Urtica dioica* and combined treatment have the greatest increase on adult motility.

# Regeneron Science Talent Search



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**~2500 Applicants**



**Top 300**



**Top 40**



**Top 10**

**Application Period:**

June - November

**Scholar and Finalist Announcement:**

January

**Finalist Week and Top 10 Awards:**

March

# Regeneron Science Talent Search



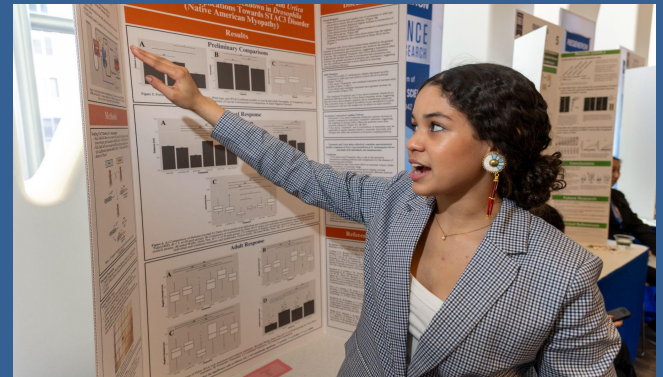
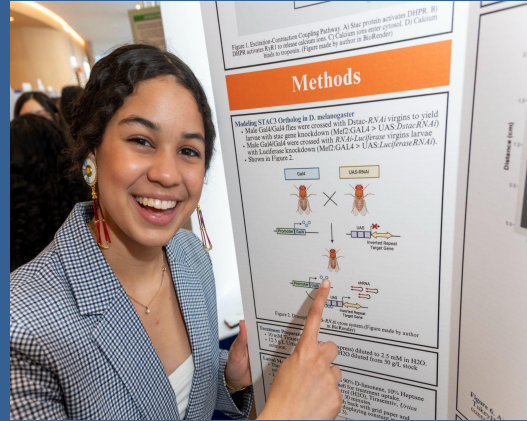
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