## **Genomic Translation Across Species Core** (GTASC)

Co-Leaders
Eileen Crimmins & Em Arpawong



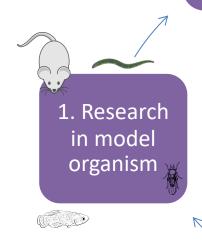




# GTASC goal is to advance translational research through collaboration in the cycle of research

2. Gene candidates for effects on lifespan and aging phenotypes





#### 3. GTAS Core Collaboration

- Human ortholog genetic association tests
  - Single phenotypes or indexes
  - Phenotype-wide Association Scans (PheWAS)
  - Interaction analysis: GxE or GxG
- Pathway and mechanism analysis
- Gene expression analysis
- Epigenomic analysis

#### 4. Findings in Human Samples

- Develop new research directions
- Develop humanized model systems
- Develop mechanism-based studies







# Collaborate with the GTAS Core to inform experimental designs

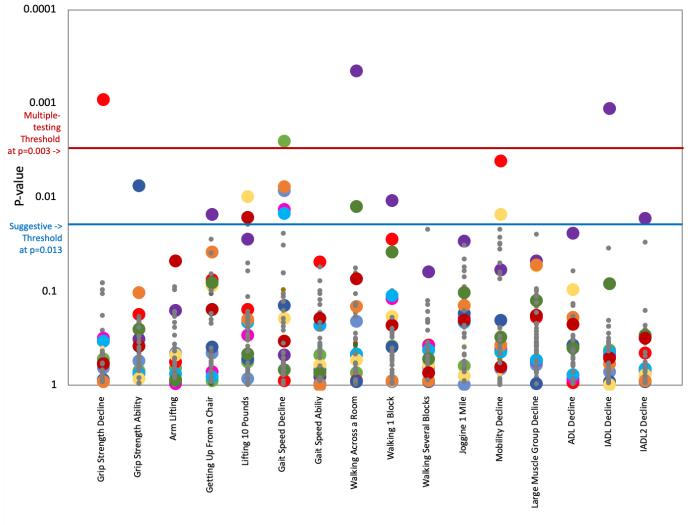
- Conduct hypothesis-driven interrogation in large-scale longitudinal human datasets (up to 25 years of follow-up) invoking several data components:
  - Blood-based markers, inflammaging & immune indicators
  - Genomics and transcriptomics
  - DNA methylation
  - Telomeres (DNA deterioration)
  - Flow cytometry
  - Physical status and muscle functioning
  - Disease conditions & metabolic indicators
  - Cognitive & behavioral phenotypes
  - Mortality/longevity
- Conduct pathway analysis to inform networks with these components







### Example of validation: GeneWAS muscle functioning









### Core Pilots and Vouchers

Apply through the website

https://uscbucknsc.org

**Contact Core Leaders with Questions** 

Em Arpawong, PhD

arpawong@usc.edu

Eileen Crimmins, PhD

crimmin@usc.edu





