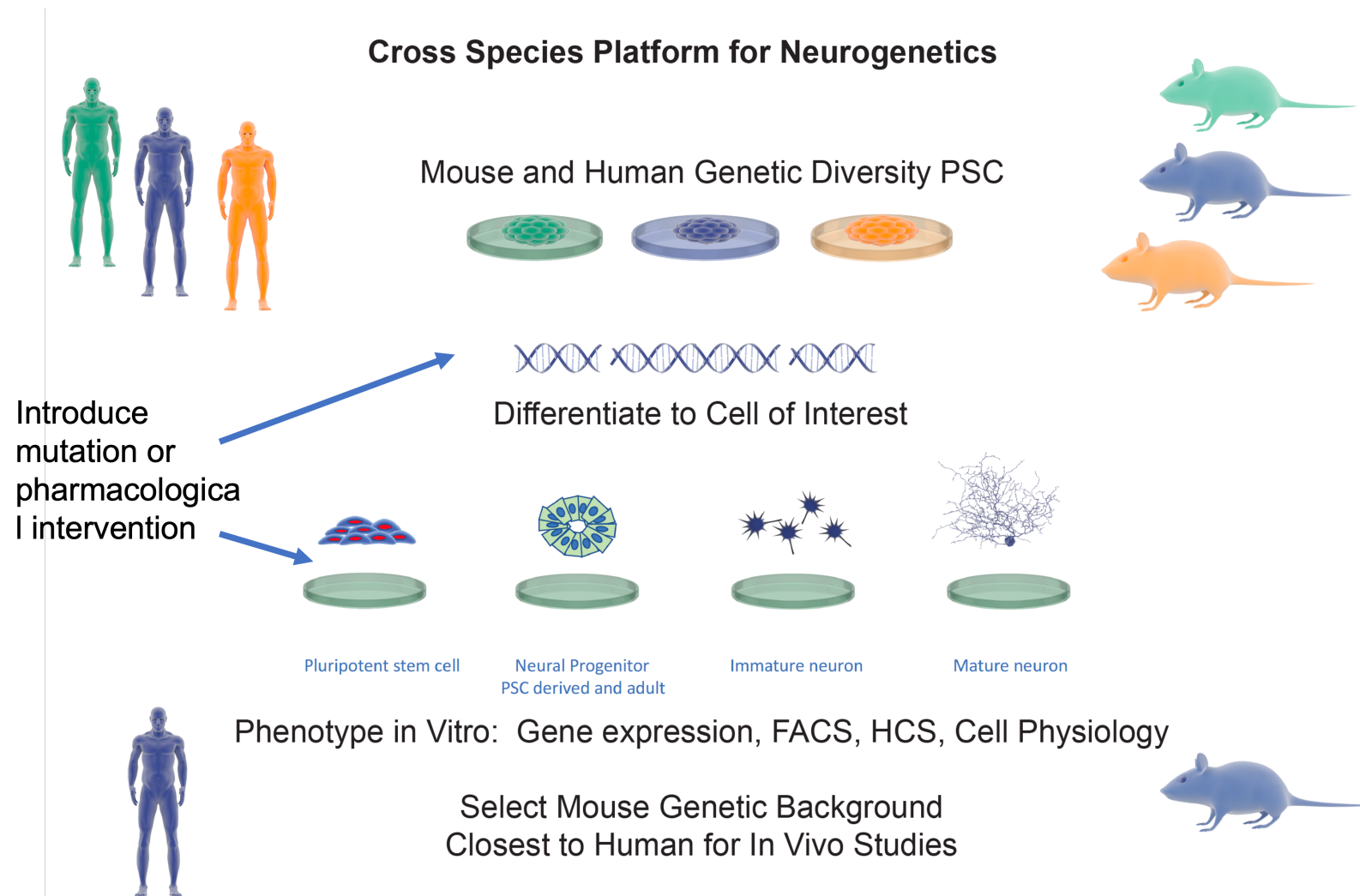


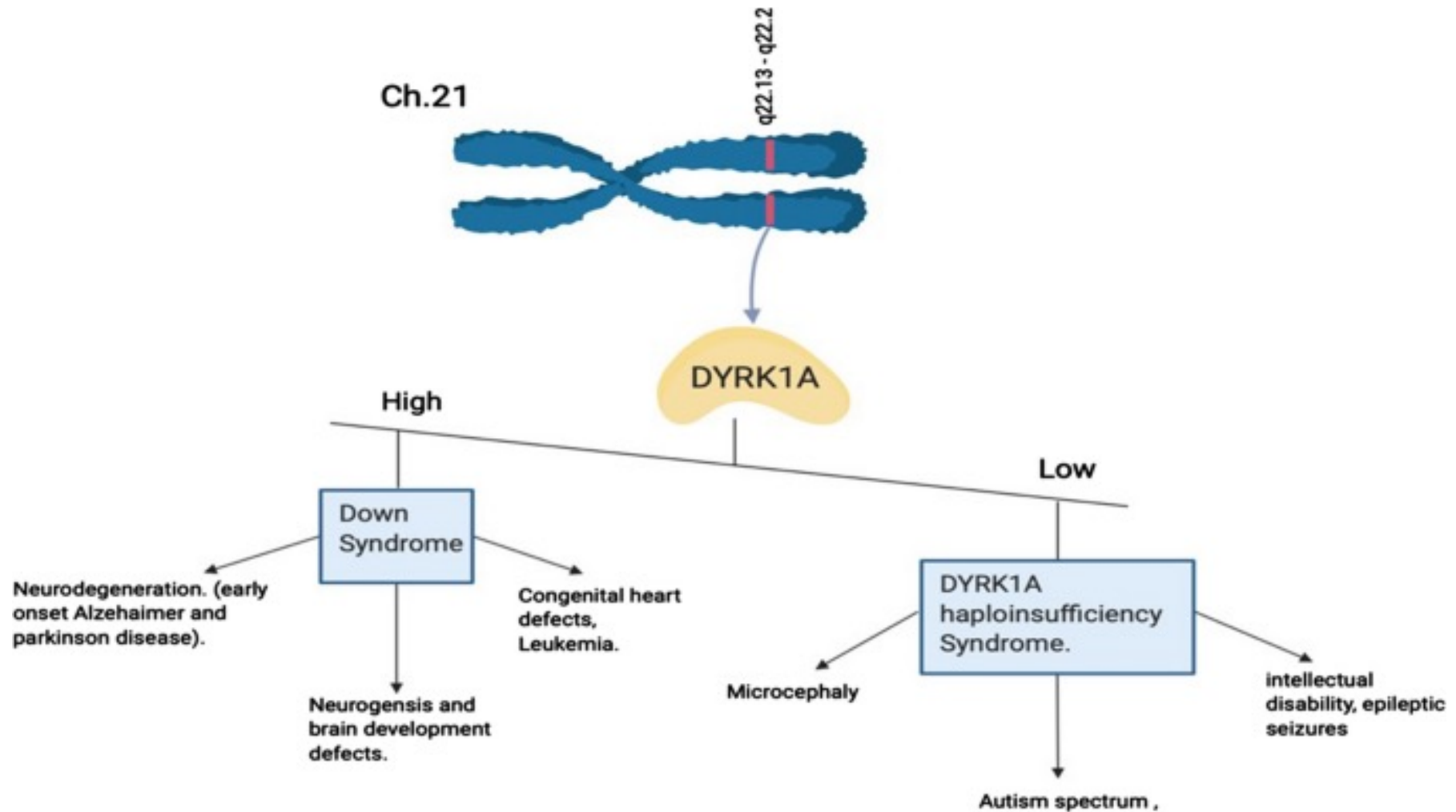
**AN IN VITRO MODEL TO STUDY THE  
ASSOCIATION OF GENETIC DIVERSITY  
AND NEUROLOGICAL CONDITIONS  
REVEALS NOVEL GENES IN DYRK1A-  
RELATED DISORDERS AND AXONAL  
INJURY LINKED TO SUSCEPTIBILITY  
AND RESILIENCE**

Dan Cortes MD PhD

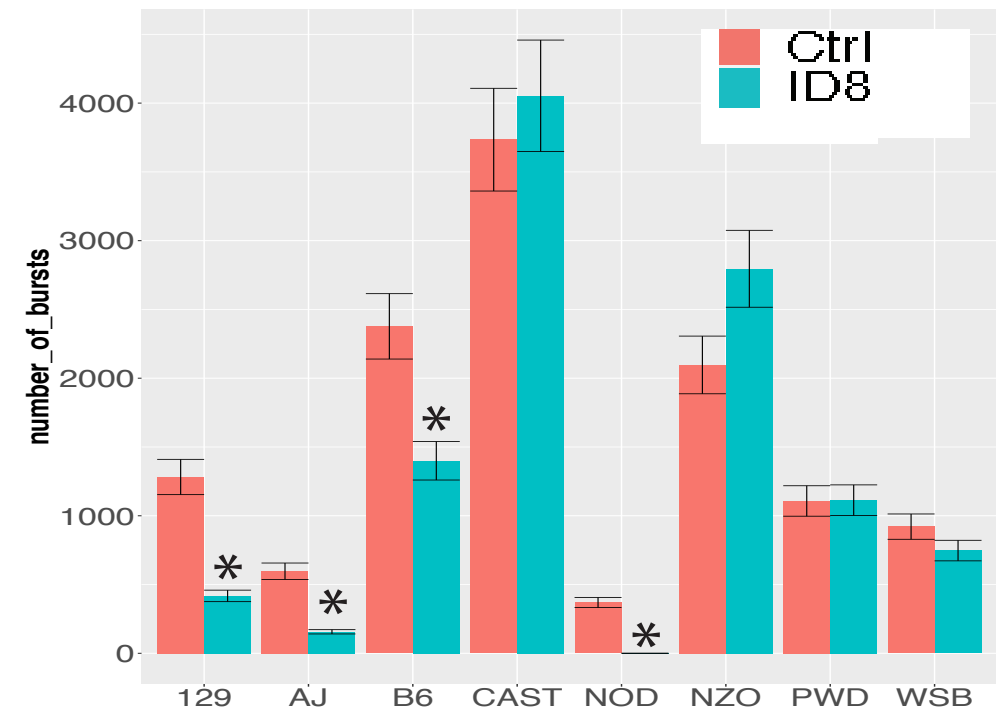
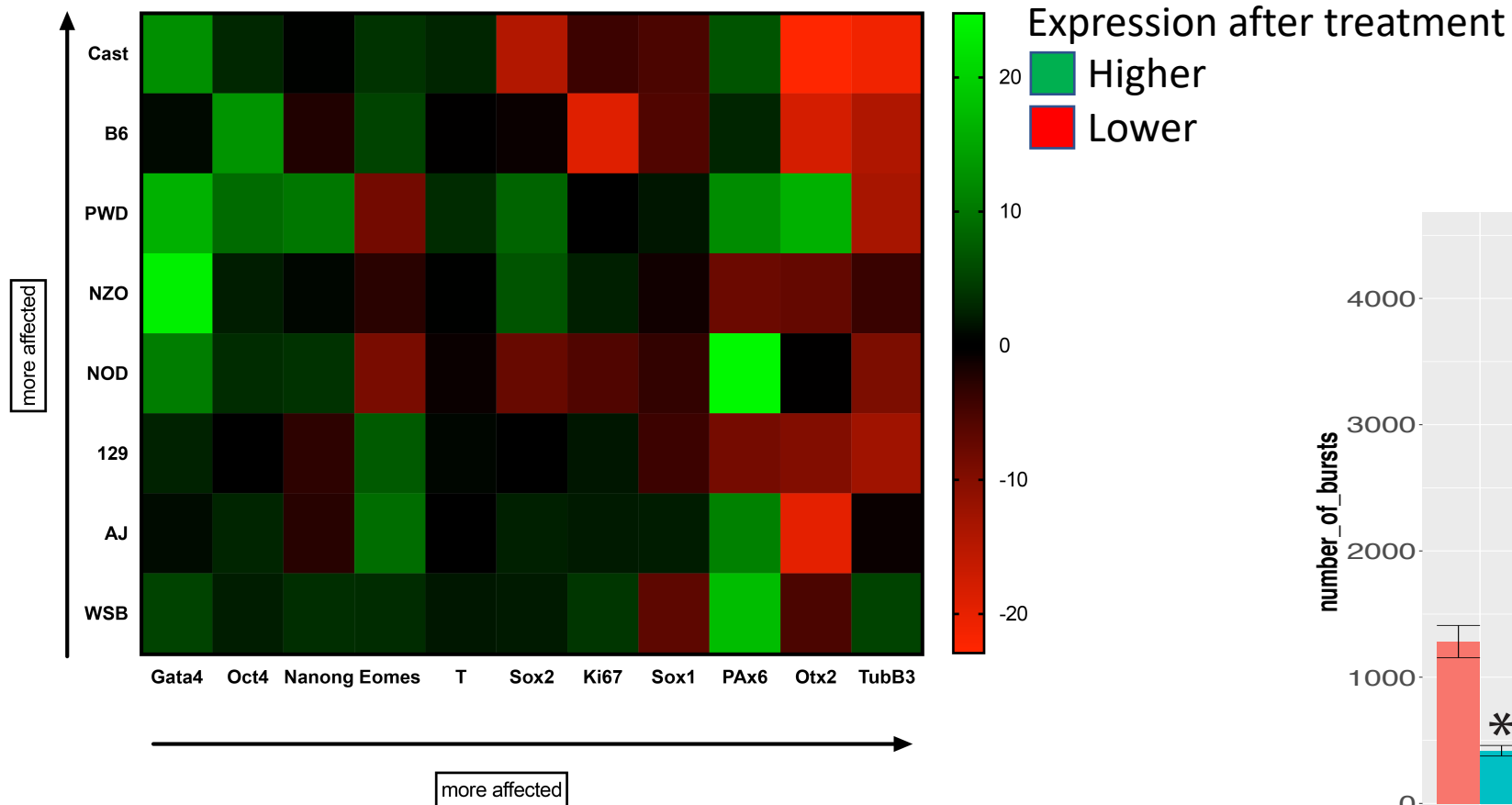
# Neurogenetics platform



# Dyrk1a mutations and Autism

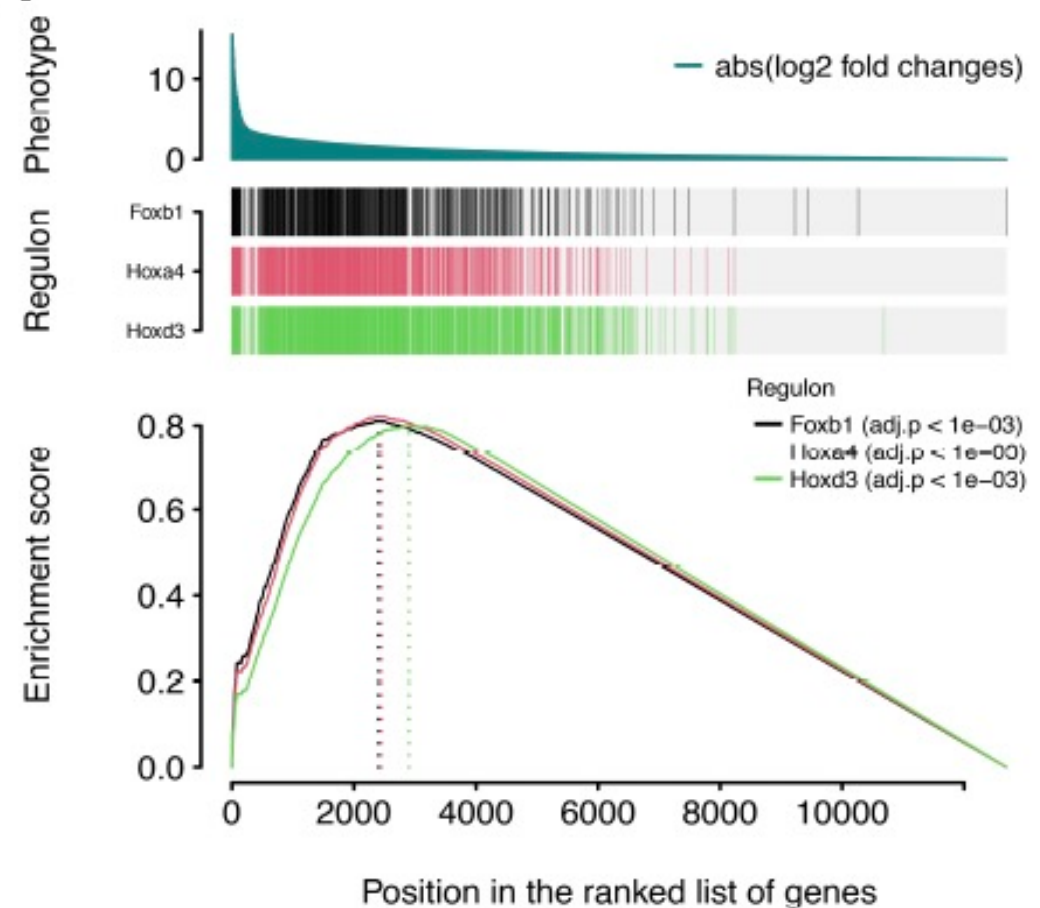
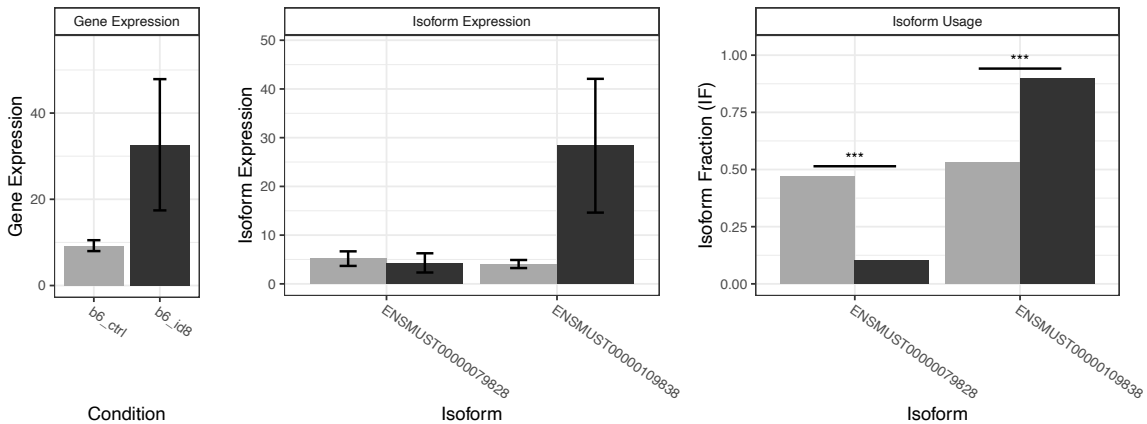
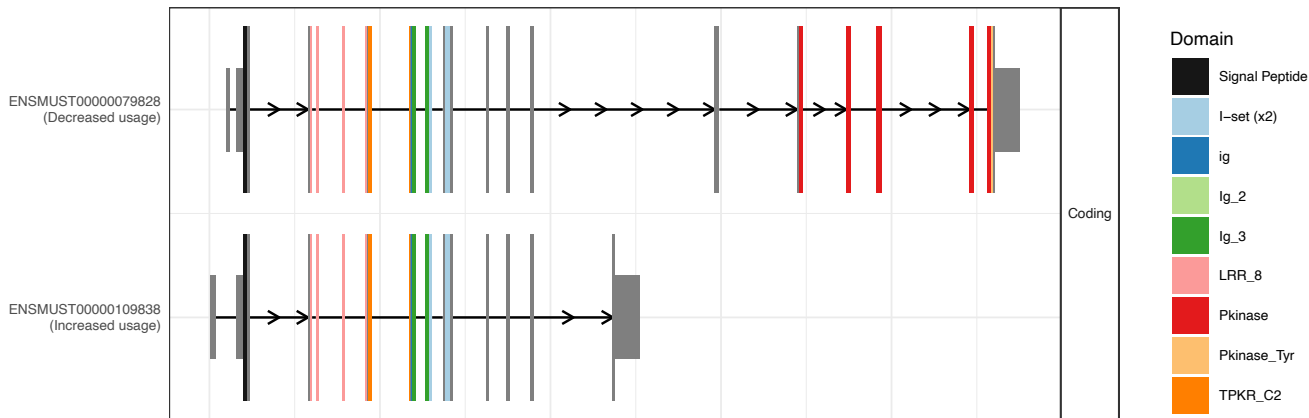


Phenotypical characterization of eight genetically diverse mESC-derived neurons shows different degrees of susceptibility when Dyrk1a (ID8) is inhibited.

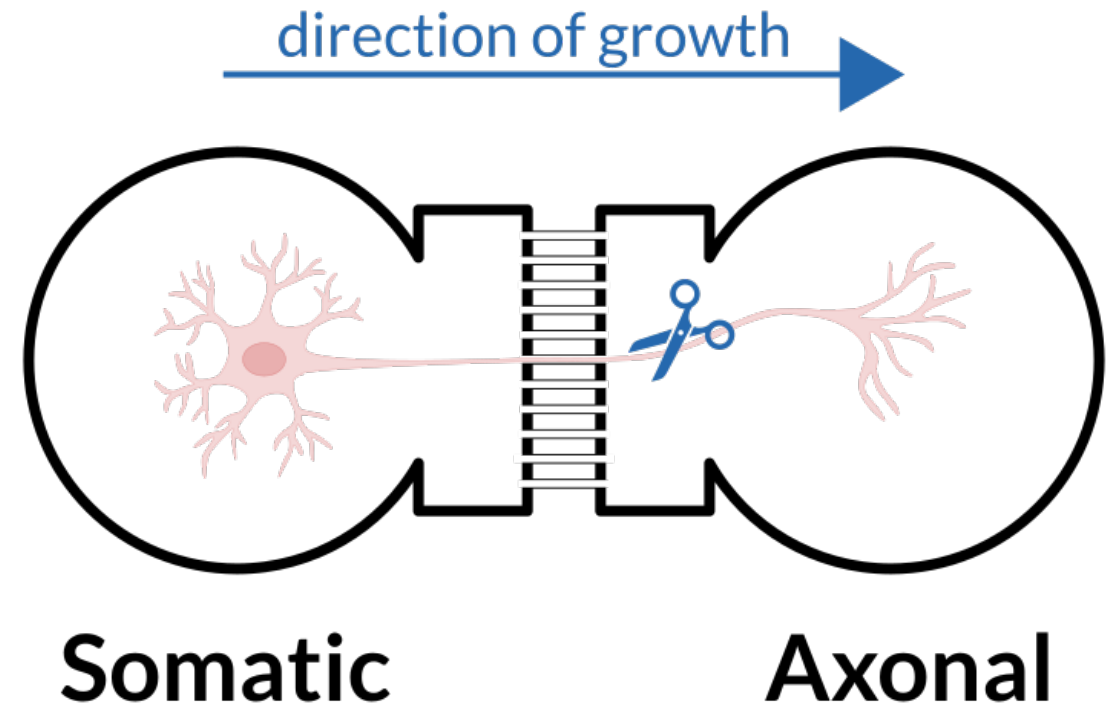
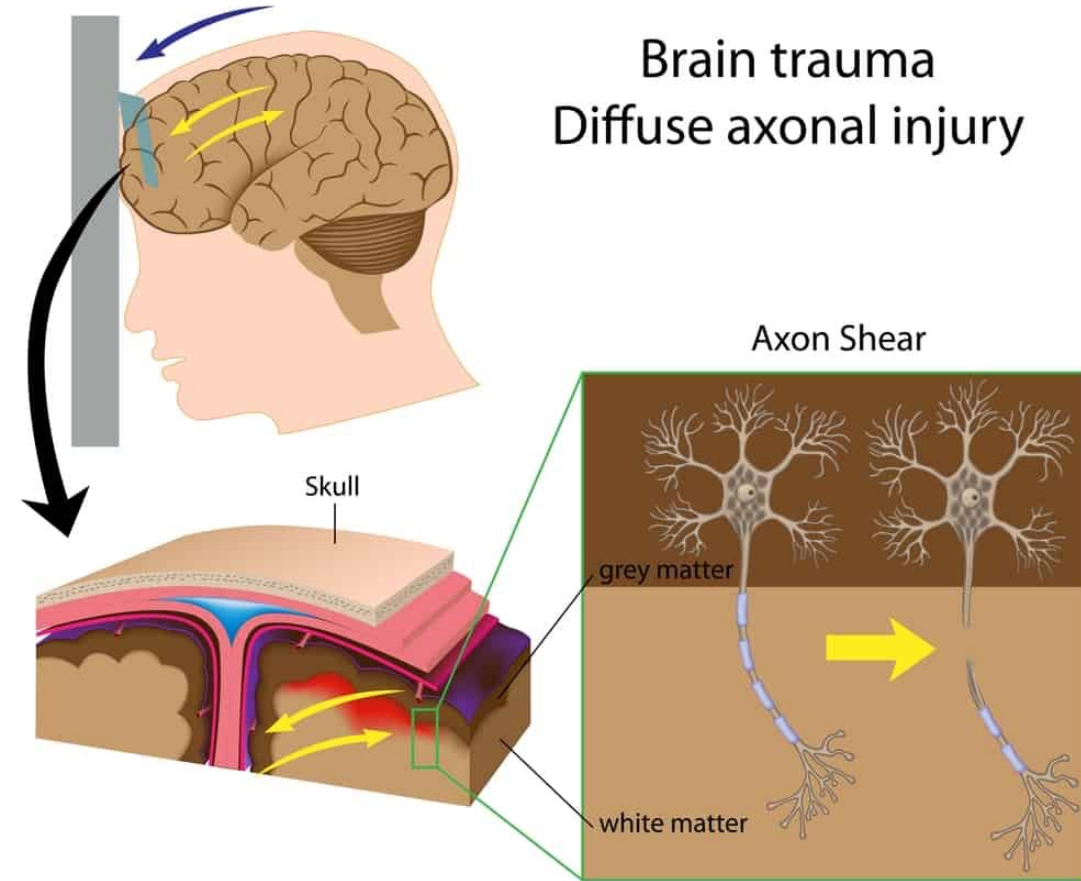


# RNA-seq analysis of susceptible and resilient strains shows genes associated with the phenotype and potential transcriptional regulatory networks

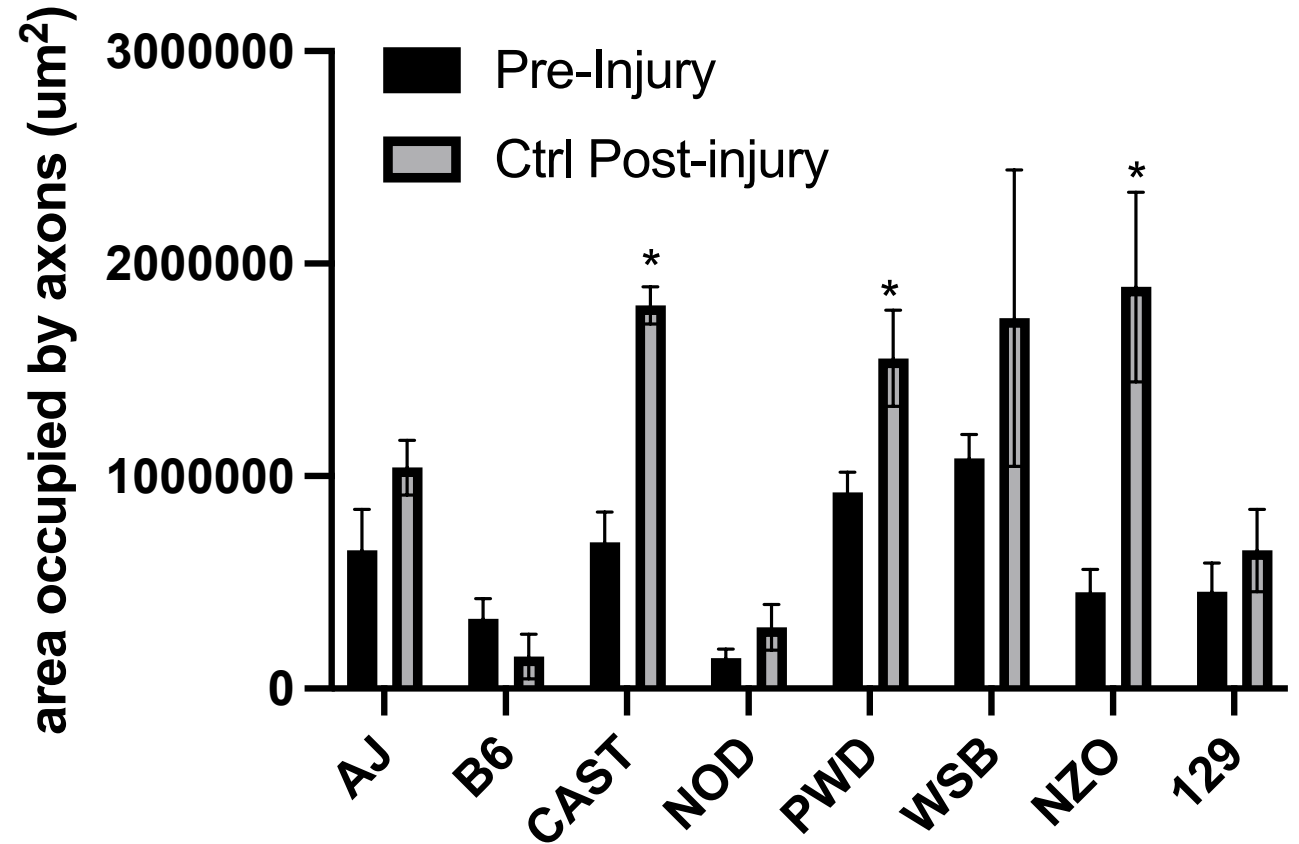
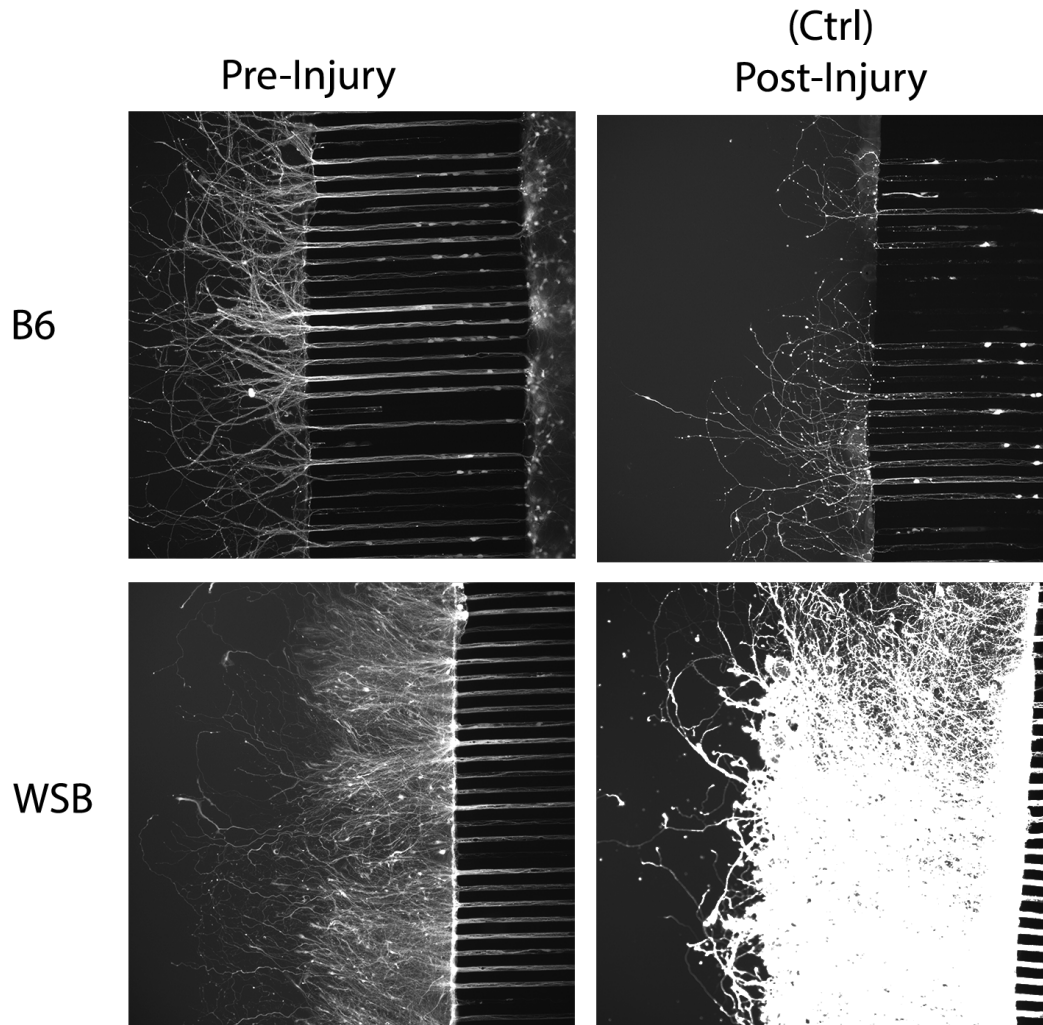
The isoform switch in Ntrk2 (b6\_ctrl vs b6\_id8)



# Traumatic Brain Injury and diffuse axonal injury

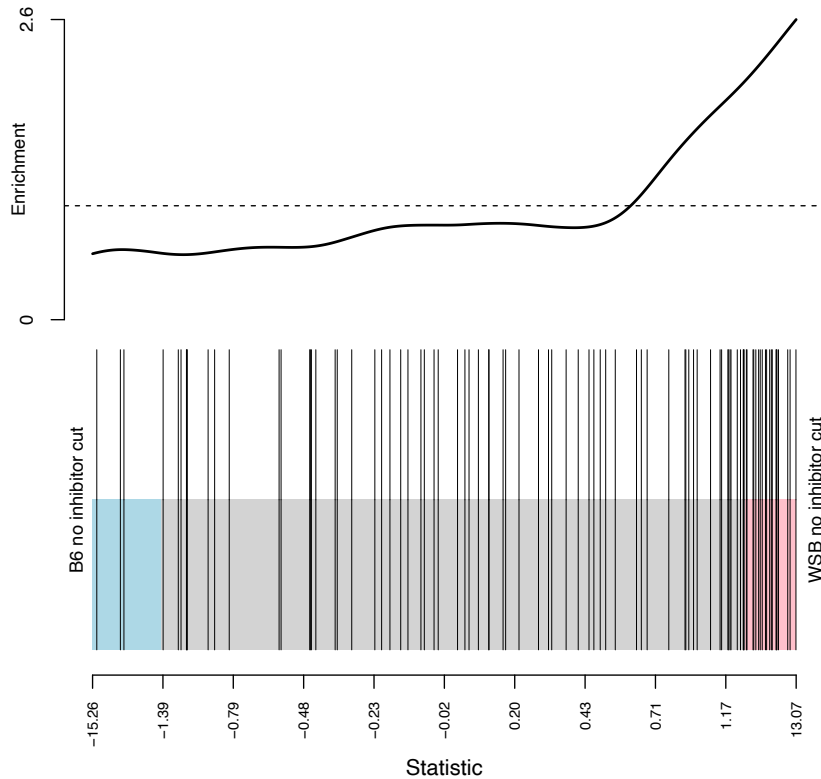


# Axonal regrowth after injury varies among genetically diverse mESC-derived neurons

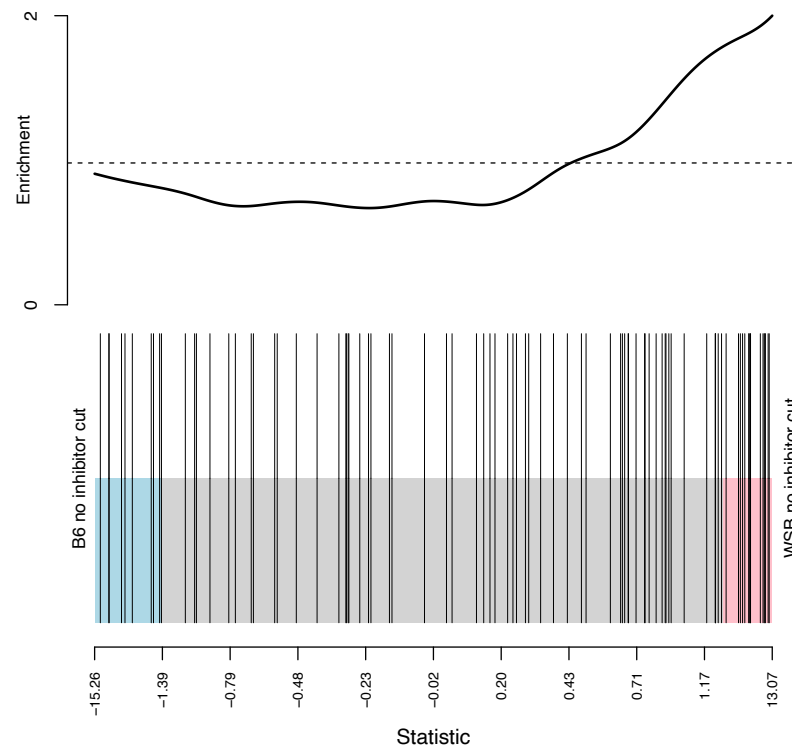


# Gen ontologies enriched in resilient (WSB) vs susceptible (B6) neurons

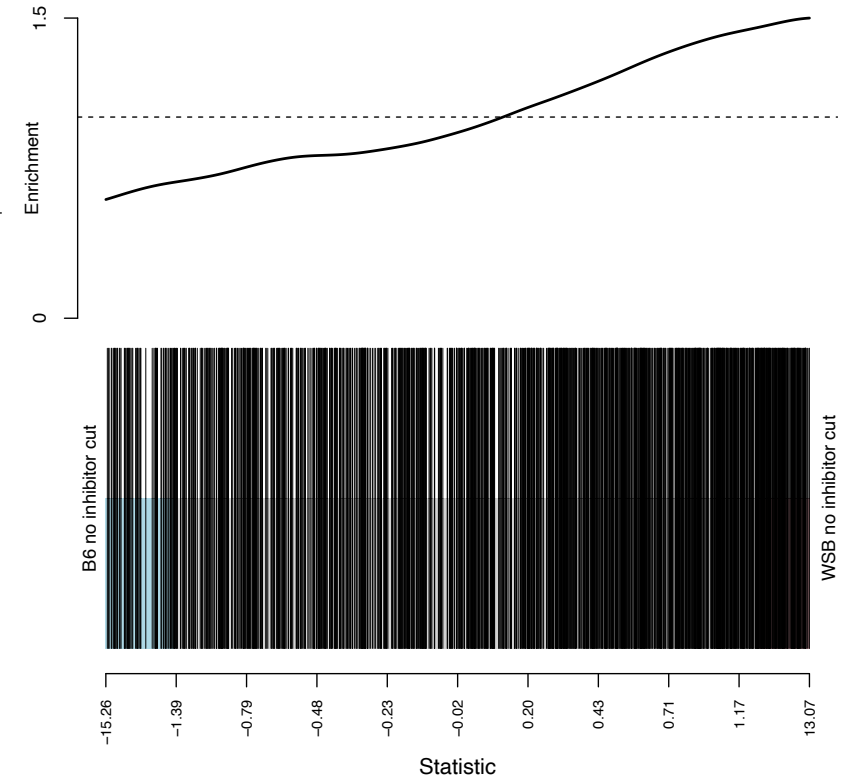
pyruvate metabolic process



cellular response to hypoxia

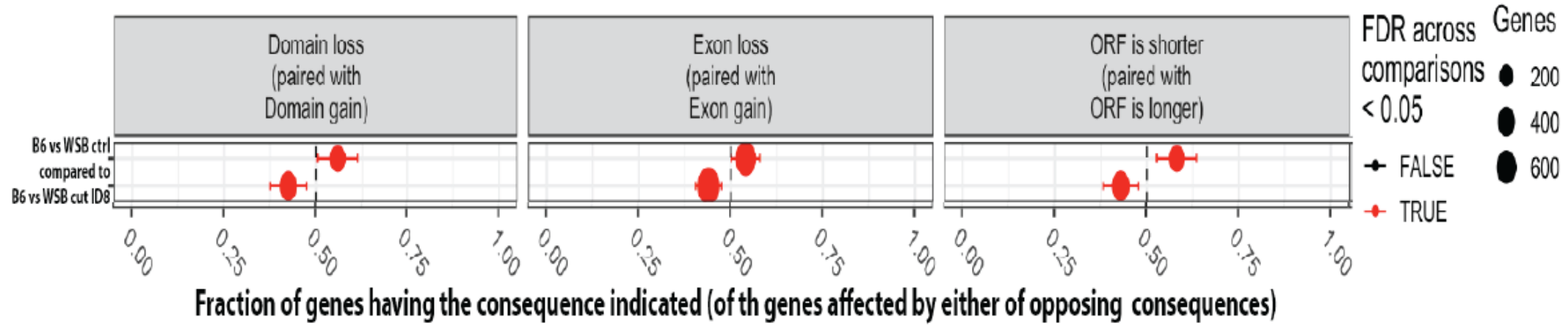


neuron projection

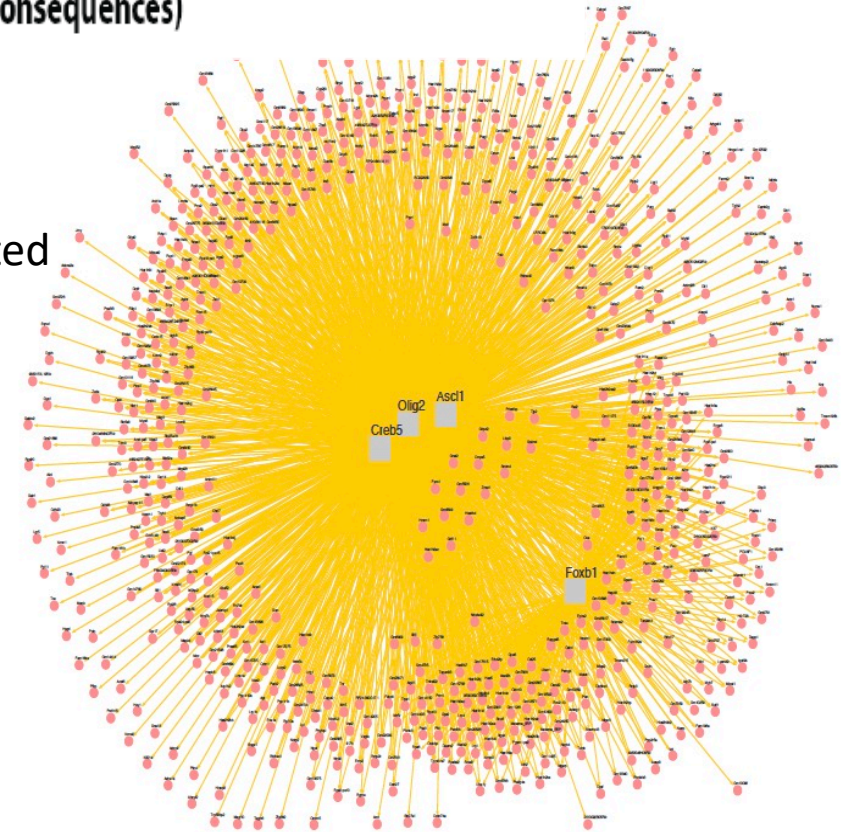




# Differential global transcript changes associated with axonal injury and regrowth

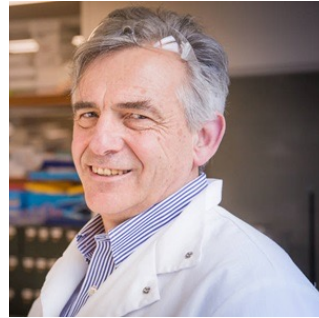


Transcriptional regulatory network associated  
With axonal injury and recovery



# Thanks

- Pera Lab
  - Nurten
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  - Alex



- Catherine Kackzorowski
  - Laura Reinholdt
  - Computational services
  - Genomic Services
- 
- GRANT
    - Jax scholar

