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# Areas of Investigation with Respect to Reserve and Resilience

<b>POPULATION STUDIED:</b>	Genetically diverse mouse models of normal aging and familial Alzheimer's disease, longitudinal & cross sectional
<b>METHODS:</b>	behavior, MRI, pathology, genetic, and computational models
I investigate the mechanisms of memory failure in populations of aging mice and those with causal human FAD mutations using unbiased systems genetics approaches	

# Concepts Used In Research

<b>Reserve</b>	above average performance at baseline (adulthood), due to genetic and/ or lifestyle factors, that may confound the measure of cognitive decline caused by aging or age-related diseases
<b>Resistance (to pathology)</b>	the prevention of brain pathology incurred at molecular, cellular, tissue and regional levels, which entails modulation of production/clearance mechanisms in response to damage due to high-risk genetic/aging/environmental perturbations ‘wear and tear.’
<b>Resilience</b>	the active preservation of cognitive abilities, which entails ongoing repair and replenishment of the brain in response to damage incurred at cellular and molecular levels due to high-risk genetic/aging/environmental perturbations ‘wear and tear.’

# Example of Data that Address One Concept

- **Concept:** resilience
- **Measure:** AAO cognition
- **Operational definition:** Delayed age at onset of cognitive symptoms in FAD carriers (mouse and human)

