Influence of Ovarian Germ Cell Depletion in Post-Menopausal Mice

Student Research Symposium
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Outline

- Introduction and Background
- Hypothesis and Importance
- Methods
- Results
- Summary
Introduction

- Menopause – ovaries become senescent
- Increases disease risk including, diabetes, cardiovascular disease, etc.
- Young ovary transplantation increased longevity and health in mice

Average lifespan: 644 days

Photographs by Dr. Jeff Mason
(Mason et al., 2011, 2016)
Germ cells reprogram somatic cells to support reproduction. We hypothesize that ovarian germ cell depletion allows ovarian somatic cells to support organismal health.

Modern medicine has extended our time of dying but our health is still worsening.

Over 162 million women in the U.S.
Methods: Transplantation and Treatment

Germ cell depletion → Transplant Surgeries

Data Analysis ← Health Span Assays

Controls
- Very old: 800 days (n=5)
- Old: 660 days (n=6)
- Young: 200 days (n=6)

Experimental
- GC Old transplant recipients: 650 days (n=9)
- GD Old transplant recipients: 650 days (n=10)
Methods: Assays

• Health Span Assays
  ▫ Rotorod
  ▫ Beam
  ▫ Tremor
  ▫ Grip
  ▫ Buried Pellet
  ▫ Burrow
  ▫ Open Field
  ▫ Novel Block
  ▫ MRI

Photographs by Kyleigh Tyler and Tracy Habermehl
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- Blood Assays
  - Hormones
  - Renal
  - Lipid
  - Glucose Tolerance Test
  - Immunoassay

- Tissue Sampling
  - Liver Protein and RNA
  - Histopathology
  - Stifle Micro CT
Results

Currently in the process of analyzing all data collected from physical assays
Summary

Foxo signaling & the germ cell & somatic cell interactions

Adapt technique to be applicable in humans

Improve the health of all post-menopausal women
Questions?

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