Young ovarian dependent, germ cell-independent influence on aging immune health in mice

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Figure 1. This figure shows measuring of the length of mice.

Abstract

While the lifespan of humans has increased in time, the health span of aging individuals has not turned away from deterioration. Medicine has been essential in extending the time of dying since as health is continuing to worsen, this is especially so in post-menopausal women. At a young age, reproductively cycling women hold a greater health advantage over similarly aged men. After menopause, the health advantage switches in favor of men as the ovarian cyclicity becomes senescent in women. Post-menopausal women are more at risk to immune deficiencies in naïve and memory cells. Previous work has demonstrated that young, cycling ovaries transplanted into aged, female mice improves several of those health conditions mentioned previously. More recently, young ovarian somatic cells were isolated from ovaries and transplanted into aged female mice Four different ages of control female mice whom had their original ovaries were compared to each other and surgery mice; 29 months, 20 months, 11 months, and 6 months. Treated mice consisted of; germ cell-containing mice of 20 months of age, germ cell depleted mice of 20 months of age, and ovarian somatic cell injected mice of 20 months of age. Changes in immune system cells were analyzed using a two-factor ANOVA. The data analyzed showed a significant increase of naïve and memory cells in all three mice groups that were tested compared to the controls. It is the hope of this research to improve the health of aging individuals.

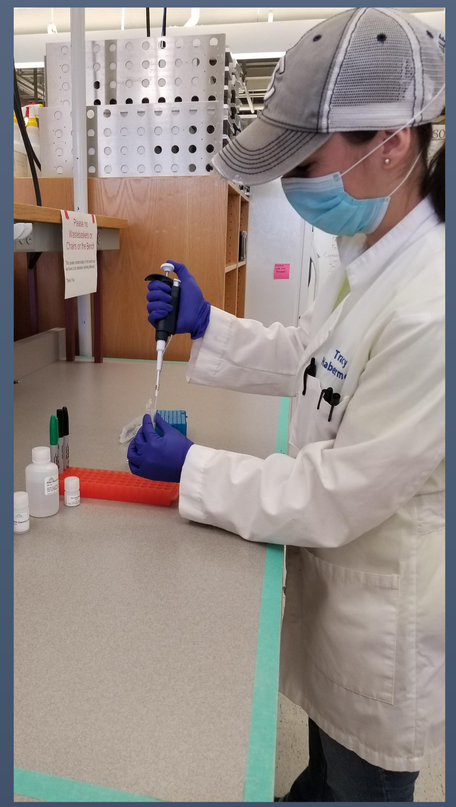

Figure 2. Shows the assay being preformed.

Methods

Our three variable groups received a donation from younger mice of either: germ cell containing ovaries(GC), germ cell depleted ovaries (GD), and ovary somatic cells (OSC). After these injection the mice we allowed rest and adapt to their new source of hormone influence. Then blood was taken from the controls and the variable mice to preform an assay to isolate naïve and memory cells (figure 2).

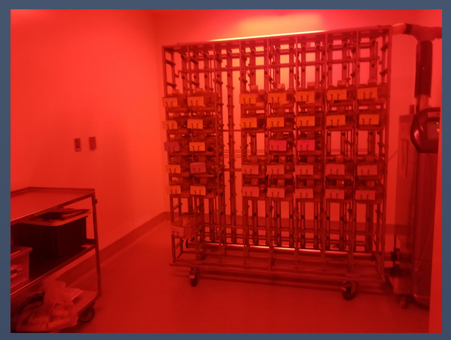

Figure 4. This shows the room the mice stay in under a red light.

Conclusion

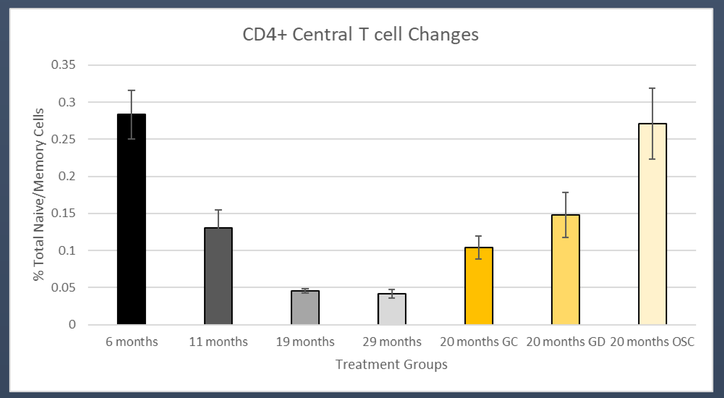

Figure 3. Shows drastic improvements in percent of naïve and memory cells found in their blood.

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