Webb Lab

Dr. Webb is an Associate Professor at The Buck Institute for Research on Aging. The Webb lab investigates the molecular mechanisms of brain aging and neurodegeneration, with a focus on transcriptional and epigenetic mechanisms. Aging is the greatest risk factor for a number of diseases, including neurodegenerative conditions such as Alzheimer's disease. The Webb lab uses a combination of cell culture systems, in vivo mouse models, and genomics, with the goal of identifying targets to improve healthy aging and treat neurodegeneration. The lab has a long-standing interest in the mechanisms of adult hippocampal neurogenesis – the process of new neuron formation in the adult brain – and why neural stem cells fail to regenerate neurons in the aging brain. The hippocampus is one of the most affected areas early in the progression on Alzheimer's disease and the lab has shown that mouse models of Alzheimer's have impairments in neural stem cells in this region. Ongoing projects in the lab include: 1) investigation of the mechanisms of protein aggregate buildup in the hippocampus in Alzheimer's mouse models; 2) identification of inflammatory and senescence mechanisms impairing hippocampal health in mouse models; 3) using Alzheimer's patient-derived human iPSC models to discover transcriptional networks to improve cellular health and function; and 4) exploration of how areas of the brain outside of the hippocampus, such as the hypothalamus, are impacted in aging and neurodegeneration. The Webb Lab is an inclusive environment and welcomes individuals from all backgrounds and identities.