Alzheimer’s disease is the most common cause of cognitive impairment in older adults. Over 38 million people worldwide are affected and this number is expected to triple by 2050. Recent neuroimaging advances have shown that Alzheimer’s neuropathology develops decades before overt clinical symptoms, leading to a cascade of brain events that progressively cause cognitive and functional decline. Mild cognitive impairment (MCI), a preclinical stage of dementia, has garnered significant attention as an early, transitional period between healthy aging and Alzheimer’s disease. The investigation of MCI has been promising by showing early biological changes, including changes in brain structure and function.

In this presentation, I will discuss early overactivation of selectively vulnerable brain regions important for executive functioning and memory and how these neural alterations may be linked to changes in functional connectivity of large-scale brain networks. Ongoing studies will elucidate the role of regional pathology and structural damage, and how early brain dysfunction may be remediated through modifiable lifestyle factors in older adults at risk for Alzheimer’s disease.

Dr. Judy Pa received her PhD degree in psychology with a focus on cognitive neuroscience at the University of California, Irvine where she studied the neuroanatomy of language and music processing using functional MRI. Dr. Pa joined the UCSF Memory and Aging Center in 2007 to pursue clinical research in neurodegenerative diseases. Her research program focuses on the functional and structural alterations in executive and memory networks in individuals with mild cognitive impairment (MCI), a preclinical stage of dementia. By employing a combination of cognitive, behavioral and neuroimaging tools, Dr. Pa investigates early predictors of Alzheimer’s disease to better characterize the trajectory of cognitive and neural change during disease progression. By understanding the neurobiological mechanisms of cognitive and pathological aging, Dr. Pa aims to identify modifiable lifestyle factors that mitigate age-associated decline in cognition and neural integrity. Her work is supported by a 5-year K01 Mentored Research grant from the National Institute on Aging and an Alzheimer's Association research award. She is currently an Assistant Professor in Neurology.