Alzheimer’s Disease (AD) is the leading age-associated neurodegenerative disorder, affecting more than 50 million people globally. No therapies exist to prevent, delay or treat AD. Current therapies target cognitive function and provide modest short-term benefit while not affecting disease progression. Alzheimer’s is a complex neurodegenerative disease that typically develops over the course of a decade or more. The hallmark pathologies of AD are decline in brain glucose metabolism and mitochondrial function, beta amyloid plaques, neurofibrillary tangles, inflammation and brain atrophy. The Alzheimer’s risk gene, ApoE4, can accelerate and exacerbate the course of the disease.

By focusing on those most affected by Alzheimer’s, women, we discovered that the brain undergoes a series of transitions starting early in the aging process that spans years, the pre-clinical or prodromal stage of AD. The long road to age-associated Alzheimer’s starts with a rise in brain inflammation and concomitant decline in glucose metabolism followed by development of the hallmark pathologies of Alzheimer’s.

The Alzheimer’s risk gene, ApoE4, can accelerate development of AD pathology leading to greater burden of disease. Lessons learned from those most affected by the disease informed our research of and development of therapeutics for both female and male brains.

To advance our precision medicine approach to Alzheimer’s, we use health informatics combined with insights from basic disease biology to identify clinically relevant strategies to detect high risk phenotypes and develop precision therapeutics that target identified causal mechanism. Our clinical pipeline includes therapeutics that restore energy metabolism, halt the degenerative process and regenerate the brain to restore cognitive function.

Building on our insights into Alzheimer’s disease, we used a big data approach to identify a common bioenergetic dysregulation across diseases; suggesting a common initiating mechanism for age-associated neurodegenerative disease.

WE HAVE DEVELOPED THERAPEUTICS THAT PROMOTE BRAIN ENERGY PRODUCTION AND REGENERATION WHILE SIMULTANEOUSLY REDUCING ALZHEIMER’S PATHOLOGY.