Dementia
RESEARCH COMMUNITY

Research Project

Researcher
Dr Esteban Cruz, The Queensland Brain Institute

Project title
Targeted autophagosomal degradation of tau to treat Alzheimer's disease

About the researcher

Dr Esteban Cruz is an early career researcher at The Queensland Brain Institute, where he develops and tests novel therapeutic strategies for neurodegenerative diseases. His research focuses on tau-targeting monoclonal antibodies, therapeutic ultrasound, and translational applications for Alzheimer's disease.

About the project
This research explores an innovative approach to treating Alzheimer's disease by leveraging the body's natural protein recycling system, known as the autophagy-lysosomal pathway, to clear toxic protein clumps called tau aggregates.

These aggregates are closely linked to Alzheimer's disease progression and other neurodegenerative disorders. The study aims to design specialised proteins, called "targeted autophagy adaptors," which can selectively tag tau for removal, helping to reduce its harmful effects on brain cells.

Using advanced cell and neuronal models, the project will test whether this method can effectively break down Tau aggregates and improve cell health. If successful, this approach could pave the way for a new class of therapies to address Alzheimer's and related diseases, offering hope for better treatments to slow or prevent cognitive decline.