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LONGITUDINAL IMAGING AND ANALYSIS OF TAU-EXPRESSING NEURONS

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Microtubule-associated protein tau has been associated with many neurodegenerative diseases including Alzheimer's disease (AD), frontotemporal dementia (FTD) and other 'primary' tauopathies.

Pathological accumulations of tau are found in post mortem tissue from affected individuals, but the role of tau in the pathophysiology of these diseases is unclear.

We applied a recently-described method of automated imaging and analysis to the study of longitudinal consequences of tau burden in cultured cells. This technology facilitates the evaluation of larger populations of neurons over longer timescales than previously feasible. We will present data from our studies of rodent-derived cultured cells and patient-derived inducible pluripotent stem cells (iPSCs) using this technology. We present these findings to demonstrate the opportunity for study of early pathophysiological pathways in neurodegeneration and testing of putative pharmacological treatments.