Biomedical Sciences
Preclinical Models of Neurodegenerative Diseases
We specialise in Parkinson’s disease, motor neuron disease; MND (amyotrophic lateral sclerosis; ALS) and neuroinflammation assays.

- Capacity in preclinical drug testing (efficacy) in disease models, or target validation studies.
- Range of state-of-the-art disease models accepted by funders and regulators as best-practice preclinical efficacy models.
- An extensive range of both standardised and novel behavioural and pathological analyses that can be customised to suit individual requirements.
- Can be coupled with pharmacodynamic and pharmacokinetic data from the same animal to maximise data output and assay validation.
- Successful record in completing industry contracts, with two drugs undergoing human clinical trials after successful testing in preclinical models.
- Strong publication track record in preclinical neurodegenerative disease animal studies.
- Offer opportunities for leverage funding through non-diluting grant funding.
- Competitive rates for both fee-for-service or collaborative research projects.

In vivo models available
- Neuroinflammation endotoxin model (peripheral or central induction)
- Parkinson’s disease 6-hydroxydopamine (6-OHDA) model
- Parkinson’s disease synuclein pre-formed fibril (PFF-Syn) model
- Motor neuron disease SOD1G93A transgenic mouse model
- Motor neuron disease TDP43-transgenic mouse models

In vitro/ex vivo models available
- Primary human microglia neuroinflammation assays (derived from human blood)
- Primary mouse microglia neuroinflammation assays (derived from mice CNS tissue)

Publication examples
Inflammasome inhibition prevents α-synuclein pathology and dopaminergic neurodegeneration in mice.
Pharmacological inhibition of complement C5a-C5a1 receptor signalling ameliorates disease pathology in the hSOD1G93A mouse model of amyotrophic lateral sclerosis.

UQ’s School of Biomedical Sciences
The University of Queensland’s School of Biomedical Sciences is making ground-breaking advances in modern medical science and providing students with the theoretical and practical skills for an exciting career in academia and industry.

Our innovative research encompasses the research spectrum from basic discovery through translational pathways to medical solutions, including:
- Investigation of cellular processes such as protein trafficking, cell signalling and organelle function.
- Study of how the dysregulation of bodily processes can cause serious human disorders such as infertility, Alzheimer’s disease and autism.
- Musculoskeletal and neuromotor analyses to improve whole-body movement performance.
- Novel approaches to heal conditions such as spinal injury, motor neuron disease and cancer.

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