PARKINSON’S DISEASE MODELS (α-SYNUCLEIN SPREADING)

α-Synuclein Immunohistochemistry

α-Synuclein 3D PERMITS™

BIOSPECTIVE IN VIVO MODELS

Our leading edge in vivo models rely on inoculation of synthetic α-synuclein fibrils to initiate Parkinson’s disease-like Lewy bodies/Lewy neurites and transmit the pathology to anatomically connected regions. This advanced model demonstrates a rapidly progressive and predictable α–synucleinopathy that is ideal to assess the efficacy of novel therapeutics(1).

Rodent Models

• A53T α-synuclein transgenic line (M83) + human α-synuclein preformed fibrils(2)
  The M83 transgenic mouse model (JAX #4479) expresses the mutant human A53T α-synuclein under control of the mouse prion protein promoter.
• B6/C3H wild-type mice + murine α-synuclein preformed fibrils(3)
• Sprague Dawley rats + murine α-synuclein preformed fibrils(4)
• Sponsor-provided transgenic models

Common inoculation sites

• Striatum
• Cerebral cortex
• Substantia nigra
• Anterior Olfactory Nucleus (AON)

Sponsor-defined locations are also possible.
BIOSPECTIVE PHENOTYPING

Immunohistochemistry

- α-synuclein, Astrocytes, Microglia
- And many more markers …

Behavioral Studies

Olfactory impairment in AON-inoculated mice (5,6,7)
Individually-housed mice are placed on a food-restricted diet for 2 days prior to and during the duration of the testing. One piece of sweetened cereal is buried and not visible. Mice are then placed in the center of the cage and the latency to find the cereal pellet is measured.

CatWalk™ Gait Analysis

Full range of behavior tests available:
- Olfactory
- Motor
- Somatosensory
- Cognition
- Gait analysis

References:
1. Tran HT, et al. [PubMed: 24931606]
2. Luk KC, et al. [PubMed: 22508839]

BIOSPECTIVE’S MODEL ADVANTAGES

- Rapidly progressive (<3 months) and predictable neurodegenerative α-synucleinopathy model
- Can model early “prodromal stage” or late “motor stage” of PD
- Brain network-targeted pathology

In addition, Biospective has experience working with a large range of rodent models, particularly models of CNS diseases. We are a one-stop shop providing a full range of preclinical services, including model generation, housing, dosing, imaging, behavioral testing, autoradiography, and histopathology studies.

CONTACT BIOSPECTIVE

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