CNS|CRO
Preclinical Neurological Disease Services

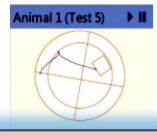
Offerings Overview

CNS|CRO offers rodent models for a variety of neurological disorders

- **ALS PDC** (Amyotrophic Lateral Sclerosis-Parkinsonism Dementia Complex)
  - Progressive model – motor neuron deficits in initial stages, followed by parkinsonism and cognitive decline
- **Autism Spectrum Disorder**
  - Pharmacological induction model; testing paradigm provides a comprehensive behavioral assessment, including multiple aspects of social-communicative ability
- **Cognitive Deficit**
  - Aged mouse model allows assessment of compound efficacy for amelioration of various aspect of cognitive and motor function
- **Chemotherapy-induced Cognitive Dysfunction**
  - Doxorubicin model of "chemobrain"; both behavioral and histopathological evaluations available
- **Epilepsy**
  - Acute and sub-chronic seizure models
- **Fibromyalgia**
  - Acid-saline rat model; evaluations for allodynia, muscle hyperalgesia, and visceral hypersensitivity available
- **Metabolic Disease**
  - Metabolic dysregulation model (high fat diet induction)
  - Offspring exhibit some behavioral alterations similar to autism spectrum
- **Neuropathic Pain**
  - Chronic constriction injury model
  - Spared nerve injury model
  - In-vivo electrophysiology evaluations available
- **Post-operative Cognitive Dysfunction (POCD)**
  - Laparotomy-induced mouse model; characterized by decline in learning and memory, and upregulation of inflammatory activity in hippocampal regions of the brain.
- **Schizophrenia**
  - Models and evaluations for positive, negative, and/or cognitive symptoms
- **Stroke**
  - Focal: endothelin-1 (ET-1) microinjection rat model
  - Global: neonatal hypoxic-ischemic encephalopathy model

progressive | predictive | customizable

Behavioral testing



- General activity/exploration
- Anxiety/depression
- Executive function
- Gross/fine motor control
- Neurosensory/neuromotor
- Conditioned place preference/olfactory
- Social behaviors
- Learning & memory assessments

All tests are adaptable to suit individual needs

Pharmacokinetics & Safety Testing

- ❖ Acute (≤24h), subacute (24h-48 days), subchronic (29-90 days), and chronic (4+ month) PK programs available
- ❖ Large variety of administration routes and sample collection techniques
- ❖ Safety evaluations performed using a modified IRWIN test

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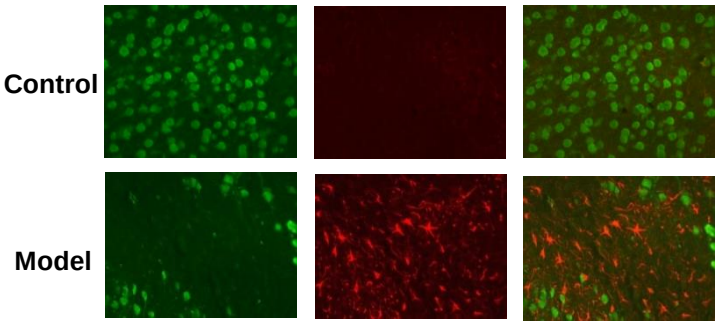
Additional Services

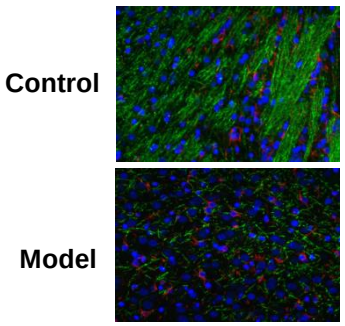
Histology

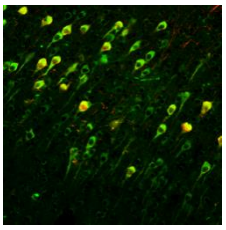
Neonatal HI Model



Merged Image

Double Labelling: NeuN (neurons; green) & GFAP (glial cells; red)



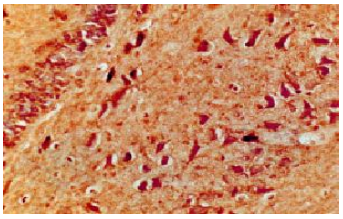


GSTpi (oligodendrocytes; red) + GFAP (green)

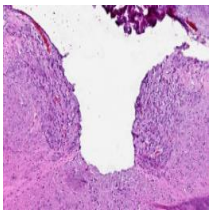
Green = Myelin Basic Protein
Red = GFAP **Blue** = DAPI

Timm staining + Cresyl

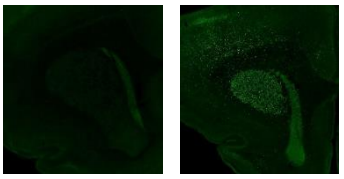
Somatostatin (DAB)



H&E



TUNEL

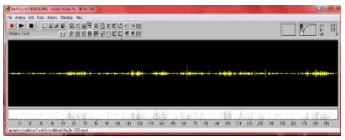


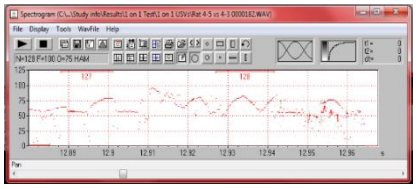
Sham **Stroke**

Ultrasonic Vocalizations (USVs)

May be used with most behavioural tests

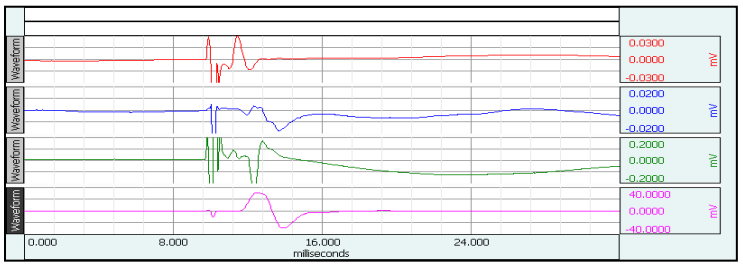
- assessments of affective state, useful for a variety of disorders (e.g. anxiety, PD, stroke, autism spectrum)





In vivo Electrophysiology

- assessments for peripheral and central nerve conduction, damage, and regeneration.



Especially valuable for pain studies