

Drug Discovery Technologies

PsychoGenics has pioneered the translation of rodent behavioral responses into robust, high-throughput, high-content pheno-typing. Its unique proprietary, behavioral platforms - SmartCube[®], NeuroCube[®] and PhenoCube[®], have led to shared-risk partnerships with major pharma companies such as Sunovion and Roche and has resulted in the discovery of several novel compounds now in clinical trials or advanced preclinical development.

SmartCube[®] **S** technology is a mouse-based system that phenotypes disease models and detects potential treatments for CNS disorders and pain. Over 10,000 compounds can be screened at multiple doses per year.

NeuroCube[®] **N** technology detects changes in behavior and gait and evaluates treatments in rodent models of neurological disorders and pain.

PhenoCube[®] **P** technology detects social, circadian, motor and cognitive behaviors in groups of mice over several days. PhenoCube can be used to evaluate disease models, identify subtle characteristics and assess possible treatments.

Contract Research

PsychoGenics, in business since 1999, is a leading provider of preclinical CNS services. The Company's capabilities include:

- Behavioral testing
- Electrophysiology
- Translational EEG
- Quantitative histology
- Molecular biology
- Microdialysis/bioanalysis
- Complex surgeries

Complementing its extensive capabilities, PsychoGenics has a variety of mouse models including in-licensed genetically-modified models that support research in areas such as:

- ALS
- Parkinson's disease
- Alzheimer's disease
- Huntington's disease
- Psychosis/schizophrenia
- Autism spectrum disorders
- Spinal Muscular Atrophy (SMA)
- Muscular dystrophy and other muscle disorders
- Trauma, Pain and PTSD
- Depression

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Redefining Drug Discovery Through Innovation



Contract Research & Drug Discovery



Contract Research Organization

PsychoGenics offers tests in rats and mice including neonates to identify potential drug candidates to treat psychiatric, neurological and cognitive disorders. When necessary we make test recommendations and help design experiments to ensure test viability (including a positive control when possible).

Mouse (and Rat) Models

Alzheimer's Disease

- APP/PS1
- Tg2576 APP Swe
- Line 41 APP Swe/Lon
- rTg4510 Tauopathy

Autism Spectrum/ Neurodevelopment

- Rett Syndrome - MECP2 (Bird)
- Fragile X - fMRI KO
- Shank3 (Feng), CNTNAP2 (Peles)
- Down Syndrome - Ts65Dn

Depression and PTSD

- Chronic social defeat stress
- Chronic immobilization stress

Huntington's Disease

- R6/2
- Q175

Movement Disorders

- ALS -SOD1 (G93)
- Muscular Dystrophy – *mdx*, *mdx*^{4cv}
- SMA – SMNdelta 7

Parkinson's Disease

- Lesions: 6OHDA & MPTP
- α -syn Fibril
- α -syn Transgenic models

Schizophrenia / Bipolar

- MAM (Rat)
- Chronic/Acute PCP
- Amphetamine/CDP for bipolar/mania

Spinal Cord and Brain Injury

Behavioral Tests

- Anxiety
- Cognition & attention
- Epilepsy
- Drug abuse liability
- Motor function
- Pain
- Depression & sexual function
- Social behavior
- Schizophrenia & mania
- General/neonatal health

Electrophysiology

Slice Electrophysiology (interface & submerged)

- Whole-cell and cell-attached patch-clamp recording
- Field recording
- Synaptic physiology/plasticity/LTP

In Vivo Electrophysiology (spontaneous and evoked)

- Extracellular single unit recording
- Field potential recording

Translational EEG

- Sleep
- Seizure
- Spectral power analysis
- Evoked potential

Quantitative Immunohistochemistry

- Uniform, systematic, random sampling
- Laser scanning microscopy
- High-throughput imaging (Axio.scan Z1)
- Full slice imaging
- Standard and non-standard staining
- Fluorescent and chromogenic IHC

In Vivo Microdialysis

- Conventional and retrodialysis
- "Push-pull" for large molecules
- Quantitative ultra-slow

Bioanalysis

- HPLC, LC/MS/MS
- Kynurenine metabolites
- Neurotransmitters & neuropeptides
- Monoamines/Amino acids /Acetylcholine
- Oxidative stress markers
- Purines/Lipid analysis

Molecular Biology & Pharmacology

- Quantitative RT-PCR
- Quantitative Western
- Quantitation of phosphoproteins & second messengers
- Rodent primary neurons/cell culture
- ELISA/ Luminex®
- Receptor occupancy & autoradiography

Other Services

- Comprehensive behavioral phenotyping of genetically modified rodents
- Circadian function
- Motor assessment
- Complex surgeries
- Multiple drug delivery techniques

