

in vitro Disease Models for Neuroscience

Team

40+ of scientists with 5+ years neuroscience experience

Experience

Established 200+ neuroscience targets

Fast

Turnaround time from 3-5 days for radioligand to 10-15 days for assays on primary cells or tissues

Assay Models

- Engineered cell line
- Primary cell 2D/3D/co-culture models
- Human iPSC-derived neural cells
- *ex vivo* brain slices

Assay Technologies

- Protein and cell-based activity and binding assay formats
- Manual/Syncropatch recording
- Multi-Electrode Array MEA
- High-content imaging

Neuroscience-related Targets

- | | | | | |
|------------------|---------|---------|----------|--------|
| ▪ DRD | ▪ TLR | ▪ ROS | ▪ TDP-43 | ▪ CB1 |
| ▪ DAT | ▪ CSF1R | ▪ Nfl | ▪ ADRA1 | ▪ CB2 |
| ▪ HTR | ▪ COX-2 | ▪ NAD | ▪ ADRB | ▪ OPRD |
| ▪ SERT | ▪ cGAS | ▪ BBB | ▪ NET | ▪ OPRK |
| ▪ 5-HT3 receptor | ▪ NLRP3 | ▪ SARM1 | ▪ CHR1 | ▪ OPRM |
| ▪ α-syn | ▪ VCAM | ▪ NMDAR | ▪ GPR55 | |

Areas of Research

Alzheimer's & Parkinson's

Pain-related
in vitro Studies

Neurite
Degeneration

Neurotransmitter
Metabolism

Neuroinflammation

Neurotoxicity-
related Studies

Tailored Neuroscience Assays for Your Research Needs

Alzheimer's & Parkinson's

Targeting β -Amyloid, Tau, and α -Synuclein in Alzheimer and Parkinson diseases.

Pain-related *in vitro* Studies

Comprehensive profiling to discover therapies targeting pain.

Neurite Degeneration

Imaging strategies to discover therapies targeting neurite degeneration.



Alzheimer's Assays

- A β monomer/protofibril SPR assay
- A β release assay
- A β aggregation assay
- A β -induced neuronal toxicity assay
- Interrogation of neural circuit plasticity
- A β -induced neuronal toxicity assay
- Tau SPR assay
- PFF seeding induced Tau aggregation

Parkinson's Assay

- α -Synuclein monomer/PFF SPR Assay

- HTS by fluorescence plate reader
- MTS by manual patch clamp
- HTS by automated patch clamp
- MEA recording of field potential
- Voltage gated ion channel recording
- Ligand gated ion channel recording
- GPCR binding and activity screening
- Brain slice recording (circuit plasticity)
- Chemical and mechanical-induced peripheral neurite degeneration
- Real-time imaging of neurites
- Neurites outgrowth
- Spontaneous and induced neural network activity
- High-content imaging of neurite biomarkers
 - NeuN
 - Tuj1
 - PolyQ
 - α -Synuclein
- Orthogonal assays
 - NAD/NADH
 - NfL
 - ADPR
- Neuronal viability via CellTiter Glo



Tailored Neuroscience Assays for Your Research Needs

Neurotransmitter Metabolism

Tissue culturing methods for studying neurotransmitter metabolism.

- Engineered cell lines
- Primary neurons culture

Neuroinflammation

Macrophage inflammation modeling and cytokine studies to target neuroinflammation.

- Phagocytosis
- LPS/A β -induced macrophage inflammation
- HiPSC-derived microglia
- LPS-primed inflammasome activation
- A β 1-42 induced NF- κ B & type I interferon activation
- Tau-induced IFN/NF- κ B activation
- IFN β and CXCL10 release

Neurotoxicity-related Studies

in vitro off-target and neurotoxicity screens to create safer drug candidates.

in vitro Off-Target Identification

- Radioligand and functional cell-based assays
- Including 40+ targets relevant for neurologic side effects
- GPCRs, transporters, nuclear receptors, enzymes

in vitro Neurotoxicity

- Organoid-based
- iPSC-derived and DRG neurons

in vivo and *ex vivo* Neuroscience Disease Models

Disease Models

- Alzheimer's
- Parkinson's
- Memory impairment
- Seizure
- Depression
- Anxiety
- Schizophrenia
- Migraine
- Neuropathic pain
- Other CNS/PNS diseases

Neurologic Function

- Electrophysiology
- Telemetry (EEG/EMG)
- Behavioral studies
- Visual acuity testing
- Transgenic animals

Biological Analysis

- Whole brains & sub-dissections
- Biomarkers
- Bioanalysis
- Blood chemistry
- Histology, IHC
- Pathology
- Live fluorescence imaging
- Bioanalysis



Explore Compound Efficacy with Comprehensive Assay Cascades

Example: Nav1.8 Screening Cascade

Human Nav1.8 overexpressing cell line and patch clamp assay validation

Screening

- Manual patch clamp assay
- Automated patch clamp assay for HTS

MoA study (resting state, inactivation state)

Sodium channel selectivity panel
Human Nav1.1-Nav1.9

Nav1.8 species selectivity
human, rat, mouse

Ephys recording on primary cultured
r/mDRG neurons

Ephys recording on iPSC-induced
DRG neurons
(under development)

in vivo animal models
of pain



Laboratory
Services



Chemistry,
Manufacturing
& Control



Clinical
Development



Biologics
& CGT