Neurobiology platform

- 200+ neurological preclinical models: comprehensive capabilities in neuropharmacology
- Full-spectrum neurological coverage: from neurodegenerative diseases and neuropsychiatric disorders to sensory and rare disorders
- In-depth analytics: harness the insights of behavioral and neurophysiological platforms for a data-driven approach to drug discovery

Well-established neuropharmacological technologies

Neurosurgery

- i.c.v. injection
- i.t injection
- Catheterization
- Cannula implantation
- Probe implantation

In vivo behavioral models

- Motor
- Emotion
- Sleep
- Social
- Learning memory
- Addiction
- Attention
- Decision-making

Electrophysiological tests

- Electroencephalogram (EEG)
- Electromyogram (EMG)
- Local field potential
- Single-unit recording
- Patch clamp

Post-life tests

- Histopathology, standard, IF, ICH
- Histopathology, RNA-scope
- Gene expression, qRT-PCR
- Biochemical, proteins
- Neurotransmitters, biomarkers

Validated disease models in house


Neurodegenerative Diseases


Neuromuscular Diseases


Epilepsy & Sleep Disorders


Ontological & Ocular Diseases


Infectious & Immune Diseases


Rare Diseases


Psychiatric Disorders


Pain Disorders


Cerebrovascular Diseases


Traumatic Disorders

Neurodegenerative Diseases

- Alzheimer's Disease
- Frontotemporal Dementia
- Sporadic Dementia
- Parkinson's Disease
- Huntington's Diseases
- Multiple Sclerosis

Motor Neuron Diseases

- Amyotrophic Lateral Sclerosis
- Spinal Muscular Atrophy

Functional Disorders

- Caffeine-Induced
- Post Surgery

Neuropsychiatric Disorders

- Depression and Bipolar
- Anxiety and Fear
- Schizophrenia
- Autism

Addictions

- Conditioned Place Preference
- Self Administration
- Behavioral Sensitization

Neurosensory Diseases

- Hearing Loss & Vestibular Dysfunction
- Ocular Diseases

Pain and Migraine

- Acute Inflammatory Pain
- Chronic Inflammatory Pain
- Chronic Neuropathic Pain
- Post Surgery Pain
- Acute Nociception
- Fibromyalgia-Like Pain
- Osteoarthritis
- Migraine
- Cortical Spreading Depression

Functional Disorders

- Seizure
- Stroke
- Traumatic Brain Injury

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Contact us

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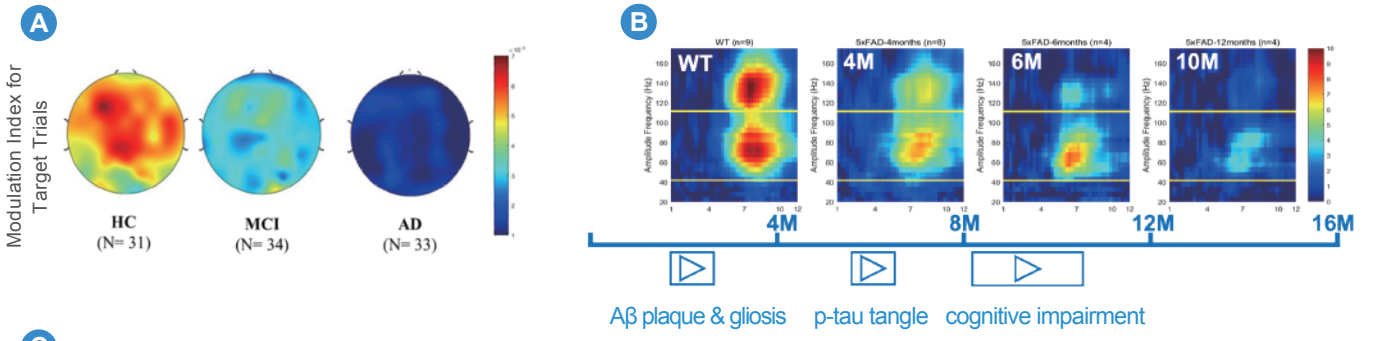
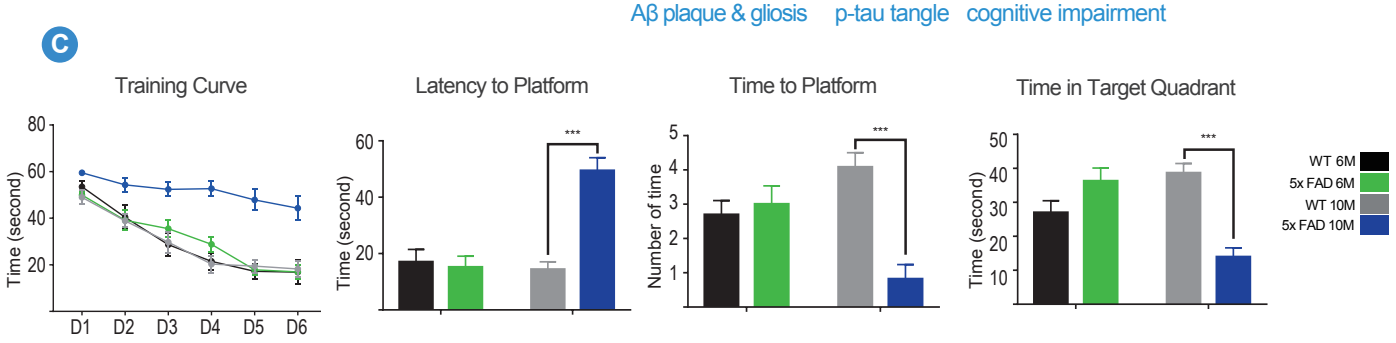
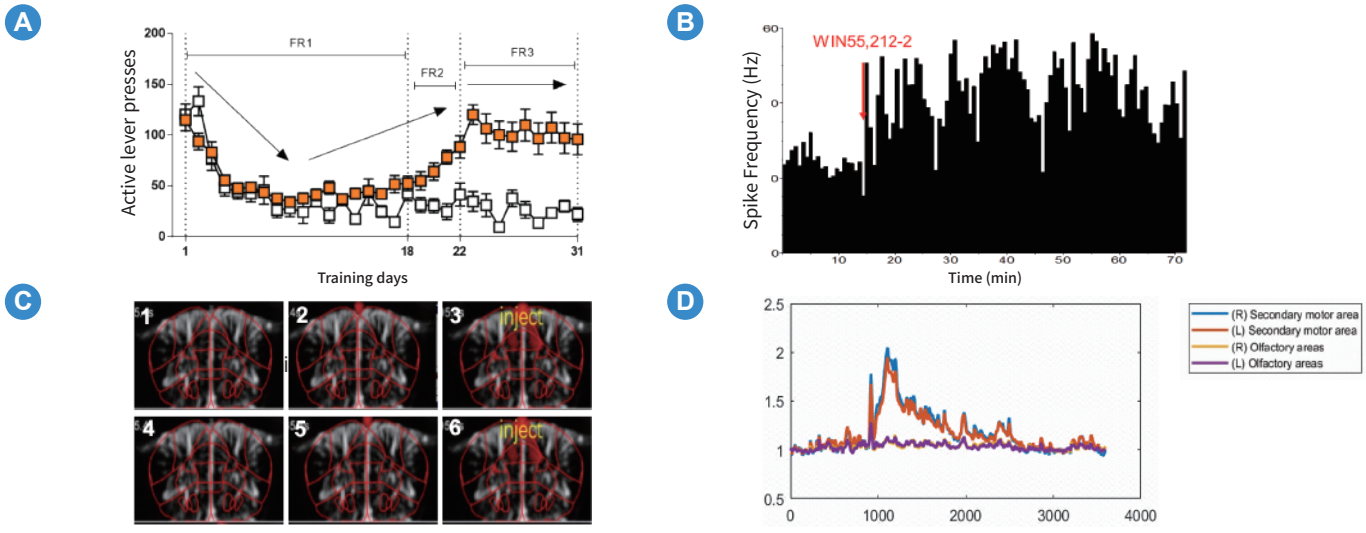
Application of a clinical biomarker in a mouse model for AD





It has been observed in the clinics that the phase of θ and the amplitude of γ oscillations are coupled (PAC) in healthy individuals, but impaired progressively in AD patients (A, Goodman et al, 2018, doi.org/10.3389/fnagi.2018.00101). A similar PAC decoupling was observed in the 5x FAD mice as early as 4 months of age and progressed with age (B). In this AD model, the onset of cognitive impairment varies, and is hard to define without experimentation (see C for an example). PAC decoupling provides a non-terminal measure to monitor the progress of AD symptoms and the efficacy of test articles in the animal model.

Addictions in rodents



In the rat self-administration model, a significant increase in active lever presses paired with WIN55,212-2 infusion (■) with increased fixed ratios (FR, number of levering for receiving 1 infusion) indicate prominent drug dependence, whereas saline (□) failed to induce any significant active levering (A). After an extinction period from active levering, animals were given another dose of WIN55,212-2 (red arrow), single-unit recording revealed a significant increase of spike frequency in the ventral tegmental area (VTA) (vs. baseline) (B), paralleled with the relapse-like behaviors induced by the drug (not shown). After sensitization with repeated ethanol injection for 2 weeks followed by 1 week withdrawal, mice were given a single injection of ethanol, and subjected to functional ultrasonic imaging (C, 1-3 before, 4-6 after injection of ethanol). Significant increases in cerebral blood volume (CBV) were observed in motor cortex (D), prelimbic area (PrL) and anterior cingulate cortex (ACC) (not shown), but not in olfactory area (D) or dorsal peduncular area (not shown).