



Rodent Platform



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The rodent platform will definitely help you to decide go/no-go in your products development

01

Toxicology

Non-Regulatory Toxicology (in Mice and Rats)

Toxicological evaluation in mice and rats by using several routes (oral gavage, intraperitoneal, intravenous, diet administration, etc), different doses and schedules of administration. Type of studies: Acute studies to determine LD50; Dose Range Finding (DRF) studies with MTD determination; 14-28 day-studies to characterize the toxicological profile. Endpoints:

- *In vivo*: health status (including a veterinary report); weight evolution; hemogram, biochemical determinations, diet and beverage intake; mortality.
- *Post-mortem*: necropsy; hemogram; biochemical determinations; histopathological analysis of target organs.

02

Efficacy

Acute and Chronic Neural Death Model (in Mice)

Search of new neuroprotectant by the study of acute/chronic neurodegeneration by systemic administration of a neurotoxin, causing seizures, excitotoxicity, oxidative damage, neuritic dystrophy, neuroinflammation, and apoptosis in the hippocampus and other limbic structures of the brain cortex. Endpoints:

- Mortality: Kaplan-Meier analysis.
- Anticonvulsant activity: seizure score, latency, % of animals with seizures, % of animals with status epilepticus.
- Neuropathological analysis.
- Immunohistochemical analysis.

Dopaminergic Neural Death Model (in Mice)

Study of acute neurodegeneration by systemic administration of MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine), causing locomotor alterations, neuron death by apoptosis and gliosis in the *substantia nigra* and *striatum*. Endpoints:

- Mortality: Kaplan-Meier analysis.
- Global motor activity.
- Neuropathological analysis.
- Immunohistochemical analysis.

Hypercholesterolemia (in Mice , Rats and Guinea Pig)

Study of hypercholesterolemia in induced (pharmacologically or by the diet) mouse models. Acute, sub-chronic or chronic studies can be developed by using several mouse models. Endpoints:

- Biochemistry.
- Macroscopic evaluation: weight evolution, fat accumulation.

Atherosclerosis (in Mice and Rats)

Study of atherosclerosis in hypercholesterolemic rodent models. Endpoints:

- Biochemistry.
- Neutrophil infiltration.
- Histopathology: lipid content (Sudan), cytoarchitecture (H&E) and collagen content (Van Gieson).

03

Pharmacokinetics

Pharmacokinetics (in Mice and Rats)

Determination of PK parameters in mice and rats by using several routes (oral gavage, intraperitoneal, intravenous, diet administration, etc). Several organs are analyzed (plasma, brain, etc), and different analytical methods are used (UPLC-MS, GC-Fid). Endpoints:

- C_{max} (maximum concentration reached).
- AUC (area under the curve).
- T_{max} (time of the C_{max}).
- $T_{1/2}$ (elimination half-life).
- V_D (volume of distribution).
- C_L (clearance).

04

Tools

Histology/Histopathology

Cytoarchitecture (H&E), neurodegeneration (FJB), apoptosis (acridine orange).

Immunohistochemistry/Immunofluorescence

- Apoptosis (TUNEL).
- Neuronal loss/dendritic atrophy (MAP2), astrogliosis (GFAP), microgliosis (Iba-1), lipid peroxidation (HNE), neuronal markers (NeuN, TH), astrogliosis (GFAP), oligodendrocytes (OSPA)...

Western Blot

- Brain neuronal markers: NeuN, A β , Tau, Tau-p...

Behaviour

- Cognitive status: Spatial memory (Morris Water Maze and Y-maze), Temporal memory (Passive Avoidance test), Episodic-like memory (Integrated Memory Test).
- Global motor activity: Strength (Grip-Strength), Global activity (Open-Field), Motor coordination (Rota-Rod test).

Molecular Imaging

Using of bioluminescence to study neuroinflammation.

Biomarkers

Peripheral and brain inflammatory markers: ELISA analysis (IL-6, IL-1 β , etc) and Milliplex Technology (up to 32 markers, mainly cytokines).

Biochemical Determinations (In Plasma and Urine)

- Biochemistry: plasma cholesterol fractions (total, free, esterified, LDL-c, HDL-c), lipoproteins (ApoA, ApoB), triglycerides, lipid peroxidation, and liver studies (triglycerides, cholesterol and fat content), AST, ALT, CK, creatinine, glucose, triglyceride, cholesterol, LDL-c, HDL-c, proteins...
- Hemogram.

Contact us!

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