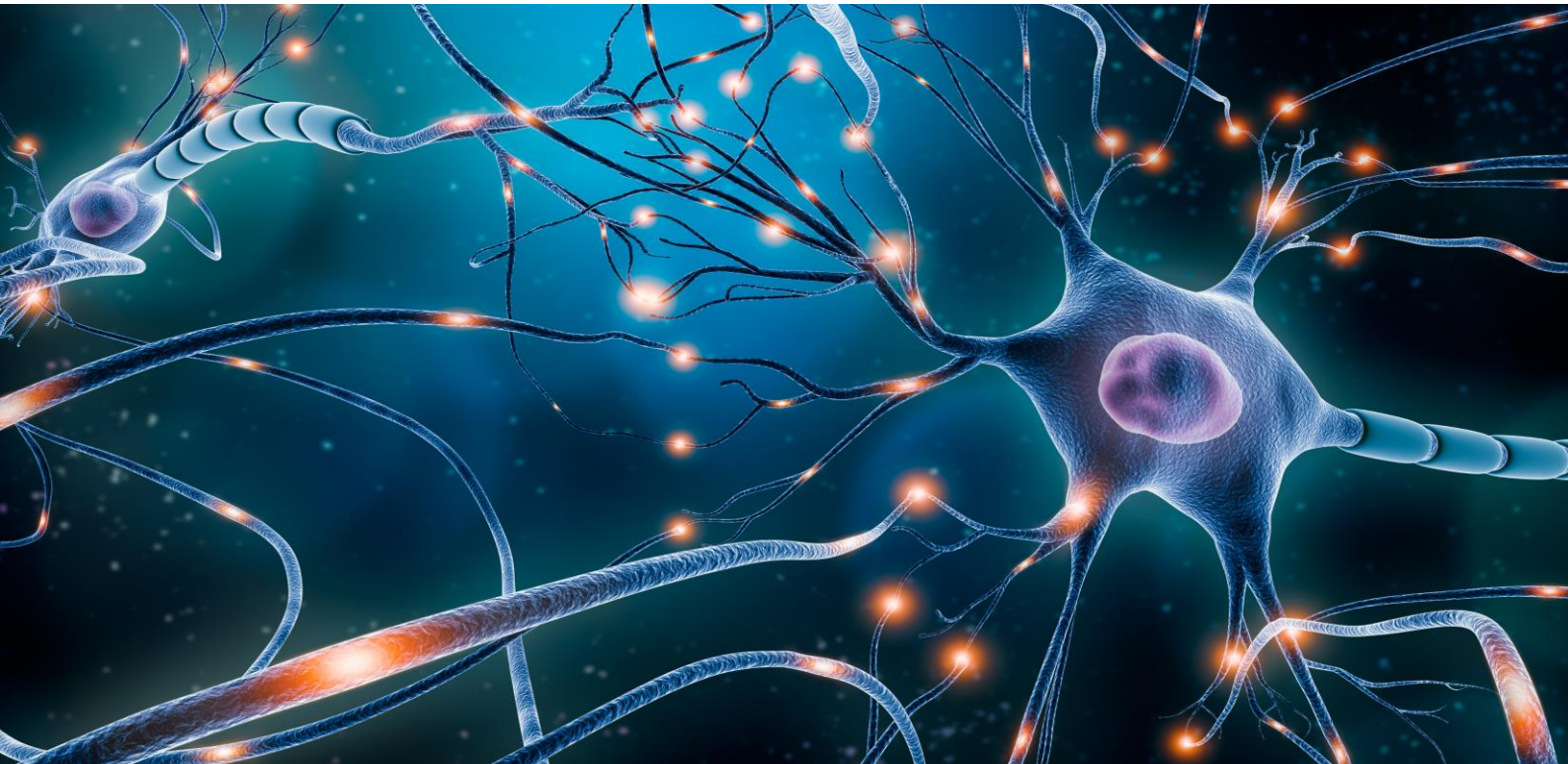




# **E-PHY-SCIENCE**

***Your efficient service solution in  
ELECTROPHYSIOLOGY***



***In Vivo - Ex Vivo - In Vitro***

***From moving animals to single channel analysis.***

**Seeking more resources in ELECTROPHYSIOLOGY or expert support for your R&D projects ?**

**Looking to increase product reliability and speed up time to market for your CNS drug development ?**

**A team of highly skilled electrophysiologists with in-depth knowledge and expertise in models of brain diseases.**

**Backed by a Scientific Advisory Board comprised of thought leading experts from industry and academia.**

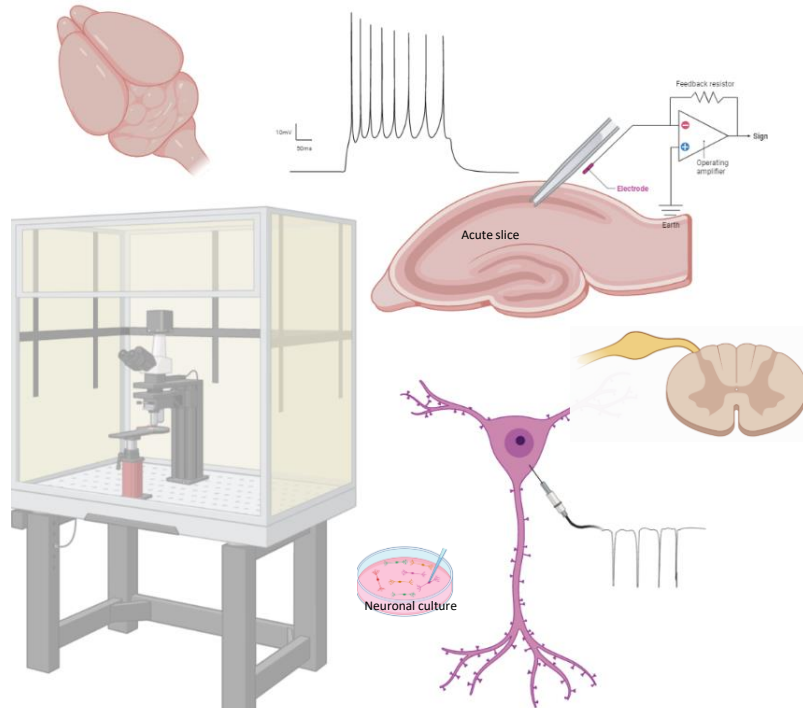


# E-PHY-SCIENCE

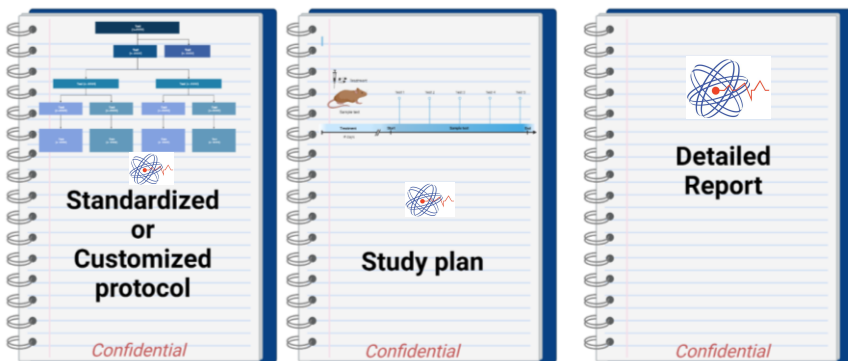
## Increase your clinical success potential

Combining both in vitro and in vivo electrophysiology, E-PHY-SCIENCE is in a unique position: To fully investigate the mechanisms of action of your compound by assessing molecular pathways

- To fully investigate drug responses, throughout all preclinical phases, and provide a rational basis for predicting toxicological outcomes.
- To perform efficient preclinical drug screening, enabling target identification or validation, effectiveness and risk assessment, target reorientation...
- To help you develop the optimal protocol to quickly test your compounds and compare against reference compounds of interest.



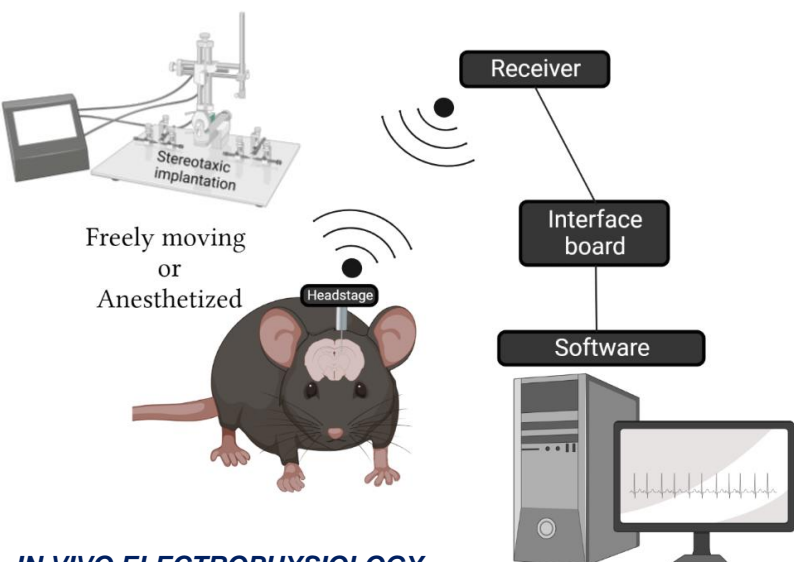
IN VITRO ELECTROPHYSIOLOGY



## Validate your rodent model

With our tailor made services, you may predict the gene function from a mutant phenotype and disease by:

- Characterizing the electrophysiological and behavioral phenotypic trait of your rodent model.
- Validating your target gene, using a range of approaches: pharmacology, diet challenge, environmental challenge...
- Mimicking a specific CNS disease to assess your rodent model.



## Boost your R&D resources

- As highly qualified researchers, we are at your disposal to conduct customized CNS R&D projects focusing on new models of CNS diseases, and involving both in vivo and in vitro electrophysiological techniques to support analysis.

IN VIVO ELECTROPHYSIOLOGY



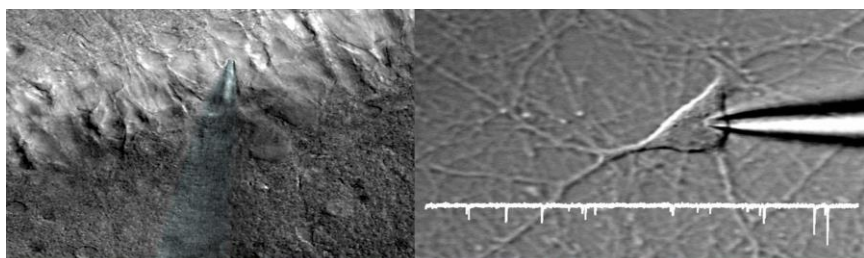
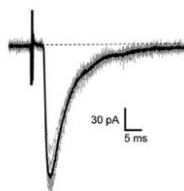
# IN VITRO Electrophysiology

## Acute brain slices & cell cultures

### Intracellular or extracellular recording

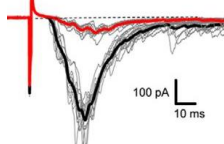
#### Spontaneous & Evoked signals

- Network oscillations
- Action potential discharge rates
- Action potential parameters
- Spontaneous & miniature ePSCs/iPSCs
- Channel ratios and conductance



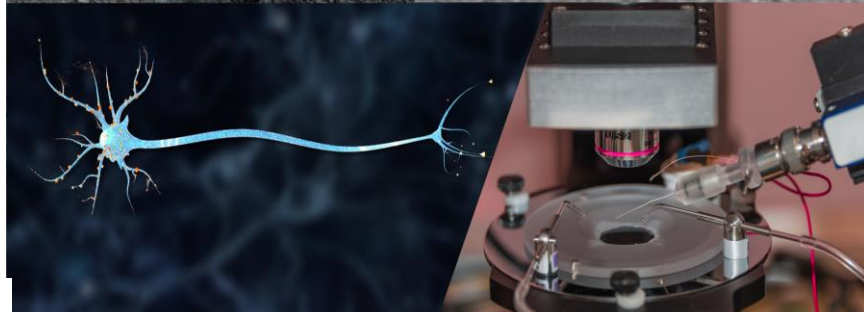
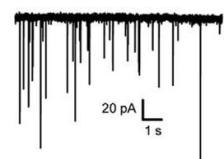
#### Synaptic transmission /evoked signals

- Evoked EPSPs
- Input-output relationships



#### Long-term plasticity

- High-frequency long-term potentiation
- Theta-burst long-term potentiation
- EPSP-spike (E-S) potentiation
- Chemical long-term potentiation
- Low-frequency long-term depression
- Chemical long-term depression



#### Short-term plasticity

- Paired-pulse facilitation
- Paired-pulse depression
- Post-tetanic potentiation

# IN VIVO Electrophysiology

## Freely moving or Anesthetized animals

### CNS recording / Deep implanted electrodes / LFP + EEG

#### Field potential (LFP) and Multi-unit (MUA) recordings

- Extracellular single electrode recordings
- Extracellular multi electrode recordings
- Electroencephalogram

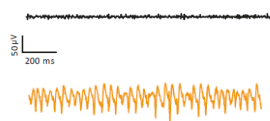


#### Plasticity measurement

- Short-term and long-term potentiation
- Short-term and long-term depression

#### Plasticity induction

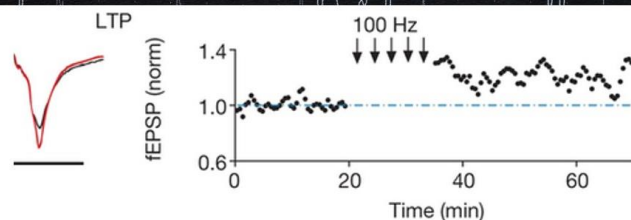
- High-frequency stimulation
- Low-frequency stimulation
- Behavioral induction of plasticity



#### Brain perturbations

- Acute injection of drugs under stereotaxic control
- Brain lesions

Cerebellum  
Cortex  
Striatum  
Hippocampus  
Ventral Tegmental Area  
Spinal cord  
Amygdala  
Thalamus  
Dorsal Raphe  
Freshly dissociated DRG neurons



# COMPOUND Administration

## Chronic or Acute

- Intracranial stereotaxic injections
- Intragastric administration (gavage)
- Intraperitoneal injections
- Subcutaneous injections
- Intramuscular injections
- Intravenous injections

# BEHAVIOUR platform

## Associated or not to electrophysiology

#### Locomotor system:

- RotaRod
- Actimeter

#### Cognition:

- Y Maze
- Morris water maze
- Fear conditioning
- Novel object recognition

#### Anxiety and depression

- Open field arena
- Elevated plus maze
- Light dark box
- Tail suspension

#### Social interaction:

- Three-chambered social test

## High ethical and work standards

Animal housing and care is operated by highly skilled animal technicians, and supervised by a veterinarian and an ethologist. The housing equipment meets the current ethical and regulatory European requirements.

## Service quality

Initiating a study involves several consultations and protocols to establish a draft study plan which is submitted for review.

After completion, our clients receive a draft study report for initial review, followed by a final report containing data analysis, statistical tables, raw data and summary of main findings.

E-PHY-SCIENCE follows stringent procedures to ensure confidentiality and intellectual property protection.

## Customer relationship, a top priority

We establish close ties with our customers with clearly defined processes and full commitment on milestone deliveries.

Team members are trained to understand your needs and to respond proactively with adapted solutions.

# *E-PHY-SCIENCE*

*Your efficient service solution in electrophysiology*

E mail: [contact@e-phy-science.com](mailto:contact@e-phy-science.com)

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# [www.e-phy-science.com](http://www.e-phy-science.com)