

MTLE Mouse

**GIVING MOLECULES
THE VALUE THEY DESERVE**



MESIAL TEMPORAL LOBE EPILEPSY (MTLE)

MTLE is one of the most common form of partial epilepsy, characterized by the recurrence of paroxysmal discharges in temporal lobe structures, mainly within the hippocampus.

It is associated with a unilateral hippocampal sclerosis, characterized by an extensive neuronal loss and a strong neuroplasticity in limbic structures, which appears to be triggered by an initial trauma during childhood.

Most patients with MTLE become resistant to antiepileptic drugs. Thereby, MTLE represents a major challenge in the clinical management of seizures.

THE MTLE MOUSE is a chemically induced model of mesial temporal lobe epilepsy.

A unilateral injection of kainate in the dorsal hippocampus induces a non convulsive status epilepticus, followed by a latent period of about three weeks.

Hippocampal sclerosis and recurrent spontaneous hippocampal discharges, resistant to AEDs commonly used in clinical practice, progressively develop and remain stable throughout the life of the animal.

Altogether the MTLE Mouse reproduces behavioral, electroclinical and histopathological features of human MTLE and represents a unique tool to qualify new AEDs that will relieve pharmaco-resistant MTLE patients.

Our solutions

SYNAPCELL provides customized solutions which cover the entire range of customers needs, from early steps to the final answer.

IN VIVO

We assess the anti-epileptic, anti-epileptogenic or pro-epileptic effects of your drug candidates through:

PREDICTIVE animal models of epilepsy

PROTOCOLS MIMICKING clinical trials

(e.g., cross-over, add-on, chronic treatment)

QUANTITATIVE RESULTS using EEG.

IN VITRO

We define the activity profile of your drug candidates on neuronal network through:

INTEGRATED MODELS on acute / organotypic brain slices.

VARIOUS EXPERIMENTAL conditions

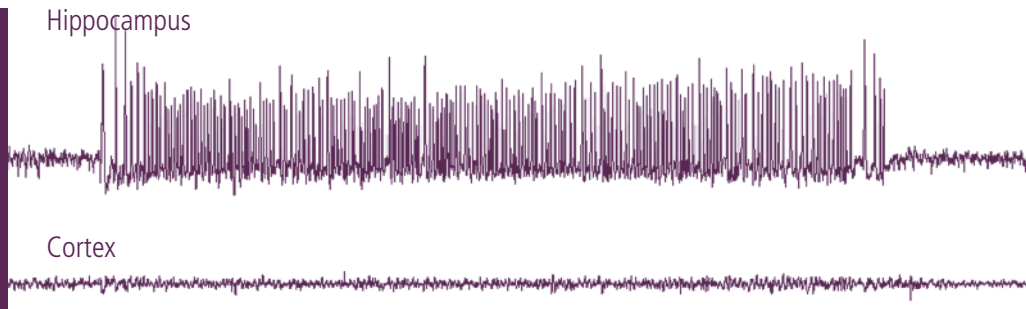
(e.g., physiological, excitotoxic, epileptic)

MULTISITE RECORDING using MEA.

About us

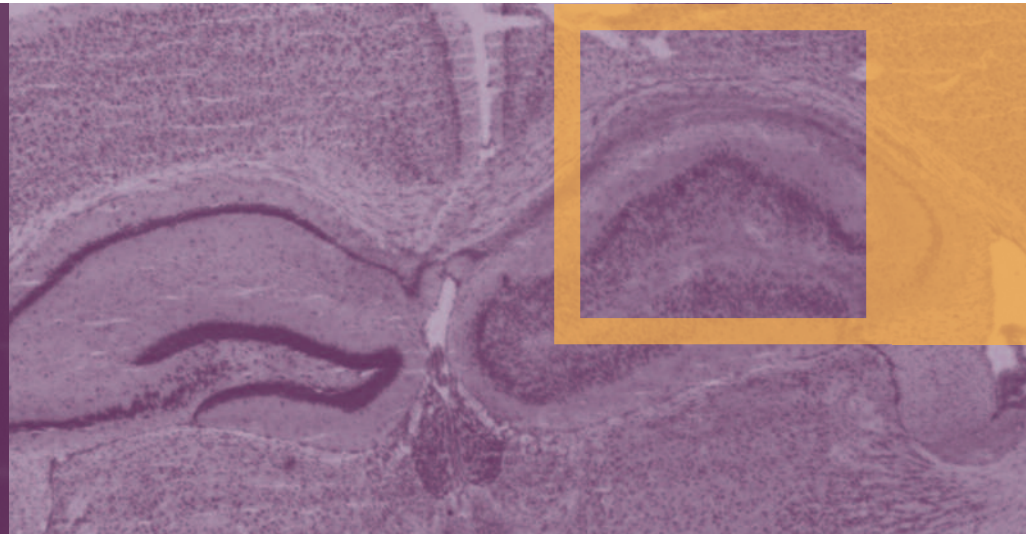
SYNAPCELL is a preclinical CRO which provides highly predictive solutions to evaluate the therapeutic potential of CNS drug candidates in Epilepsy.

SYNAPCELL
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SPONTANEOUS FOCAL HIPPOCAMPAL DISCHARGES

Initial status epilepticus
 Latent period (3 weeks)
 Mean duration = 15-20 secondes
 Mean recurrence: 45 discharges/h
 Behavioral arrest
 Rare generalizations
 No remission



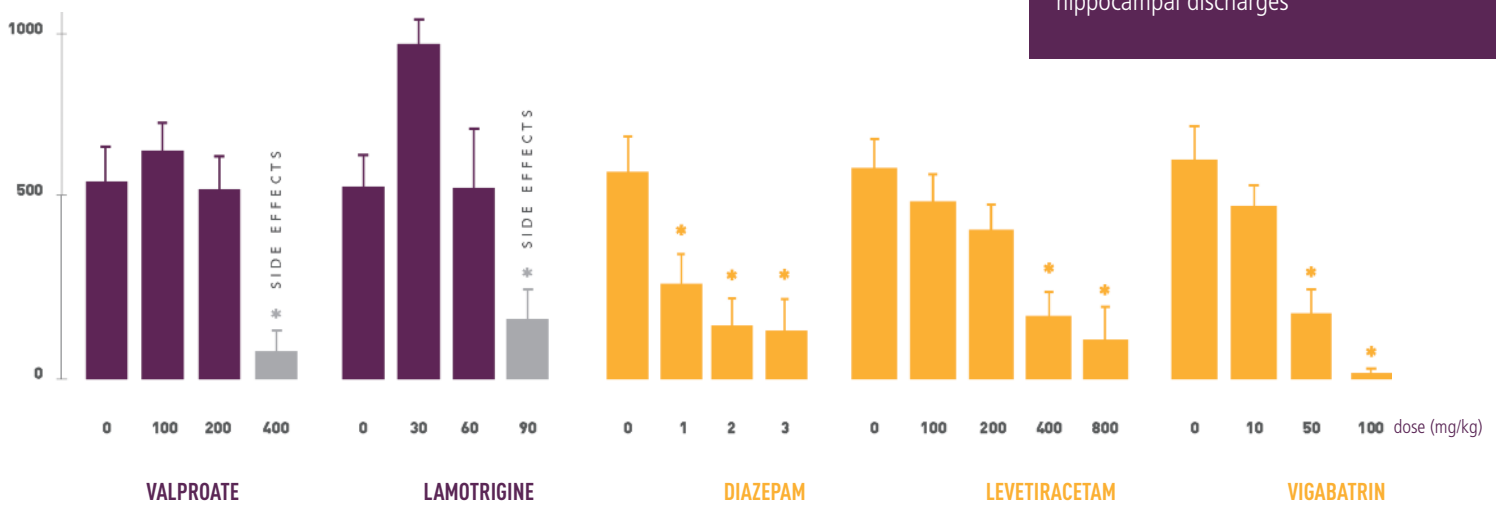
HIPPOCAMPAL SCLEROSIS

Cell loss: CA1, CA3, hilus of dentate gyrus
 Dispersion of granular cells (dentate gyrus)
 Neuroplasticity: sprouting of mossy fibers

PREDICTIVITY

Resistance to AEDs classically used in clinical practice within safety margins.
 Dose-response suppressive effects of new AEDs on spontaneous recurrent hippocampal discharges

Cumulated duration (s/60min) of hippocampal discharges



Antiepileptic effects of AEDs on chronic hippocampal discharges (acute treatments, n = 8 MTL mice, * p<0.05, Wilcoxon rank sum test)