



Your partner for hands-on
CNS electrophysiology

A white-bordered square containing a microscopic image of a neuron. The neuron is stained in shades of green and blue. The text "NSF SET*" is overlaid in white, bold, sans-serif font in the center of the square.

NSF SET*

**ASSESS THE EFFECTS
ON GENERAL PROPERTIES
OF CNS NEURONS**

*NeuroSafety Package

SAFETY & TOXICOLOGY PROFILING



DRUG
DISCOVERY

AGROCHEMISTRY &
FOOD INDUSTRIES

COSMETICS
INDUSTRIES

NSF SET-NeuroSafety Package



4 WEEKS
for final report
(3 for top-line results)



IDENTIFY
potential effect of compounds
on general properties of
Central Nervous System (CNS)



NEUROTRANSMISSION
–
NEURONAL EXCITABILITY



ELECTROPHYSIOLOGICAL
slice recording with
MULTI-ELECTRODE ARRAY
(MEA)

THE BENEFITS OF THE PACKAGE

This innovative *in vitro* recording package provides very precise data to enable decision making and a more rapid turnaround than *in vivo* assays.

- ✓ **High quality data**
- ✓ **Less quantity of compound required**
- ✓ **Short turnaround**
- ✓ **Time & Cost saving**

HOW?

- ✓ Evaluation of 1 compound at 1 concentration on 4 main properties
- ✓ 3 slices per assay (vehicle-slices included): Hippocampal or Cerebellar slices from rats or mice
- ✓ Only 5 to 15 mg of compound required

RECORDINGS	STRUCTURE	NO ADVERSE EFFECT
Spontaneous neural firing	Cerebellum	●
Basal synaptic transmission	Hippocampus	●
Short-term synaptic plasticity (Paired-Pulse Facilitation)	Hippocampus	●
Long-term synaptic plasticity (Long-Term Potentiation)	Hippocampus	●
CONCLUSION		OK

At least one effect detected : ● → ⚠ Proposal for further investigation

EXAMPLE

Figure 1: Spontaneous firing of Purkinje neurons before/after compound A exposure



Figure 2: Paired-Pulse Facilitation before/after compound A exposure

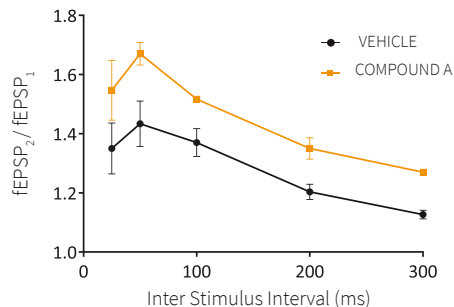
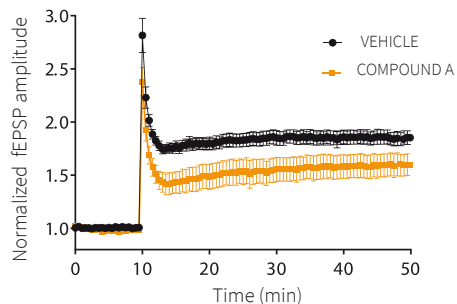


Figure 3: Long-Term Potentiation upon vehicle or compound A exposure





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