

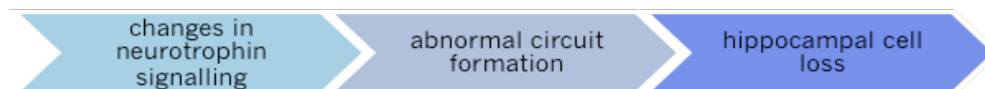
## BACKGROUND

CNSICRO's unique, developmental rat model of epilepsy provides a highly reproducible sequence of behavioural and histopathological changes that develop over time. Treated rats have altered EEG, reductions in both generalized and focal seizure threshold, and changes in sleep patterns that are highly reminiscent of those observed in partial complex epilepsy in humans.

## Differentiation & Advantages

- neurodevelopmental, slowly developing, and progressive with a latent period prior to onset of clinical signs
- behavioural changes are clinically relevant for partial complex epilepsy (e.g. orofacial automatisms; forelimb tremor)
- allows for behavioural, histopathological, and neurochemical assessments

This model displays a highly reproducible sequence of behavioural and histopathological changes which are not possible to evaluate with convulsive models.



This is **NOT** a model of convulsions

Virtually all other models induce convulsion seizures and, as such, measure only an "end state" condition

## Validation

### *Construct validity:*

this model is produced through perinatal administration of a neurotoxin with known epileptogenic effects in humans

### *Face validity:*

- low-grade (partial) seizure - may be triggered in response to a stressor
- decreased seizure threshold
- altered electroencephalogram (EEG) patterns
- decreased paradoxical sleep
- altered hippocampal cytoarchitecture and neurochemistry
- decreased interneuronal subpopulations in the dentate gyrus