

Model Overview

Chronic constriction injury (CCI) is an animal model of neuropathic pain as a consequence of sciatic nerve damage. Modified from a technique developed by Bennett and Xie (1988), the model works through constriction of the sciatic nerve with chromic gut sutures, which causes inflammation of the nerve for several weeks. This model allows testing of lead compounds for the treatment of chronic neuropathic pain, with a particular focus on inflammatory processes.

CCI model induction in rats:

- Chronic inflammation is induced with chromic gut sutures that loosely constrict the trunk of the sciatic nerve
- Tactile allodynia is evident as early as 72 hours, and continues for at least 3 weeks post-surgery
- Multiple compound administration routes are available
- Testing methods include mechanical allodynia assessments (Von Frey) and heat sensitivity
- *In vivo* electrophysiology can provide additional information regarding nerve conduction

Validation

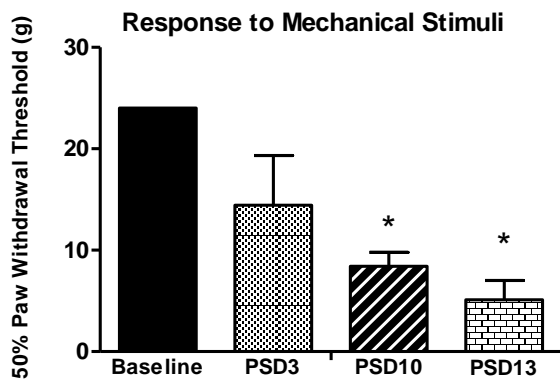


Figure 1: Post surgery rats demonstrate tactile allodynia. Asterisks denote a statistically significant difference from Baseline ($p < 0.01$). Error bars indicate SEM.

Produces unilateral peripheral mononeuropathy leading to sensitization of both A- and C-fibers



Constriction of sciatic nerve at four weeks post-surgery

Additional Measures:

If desired, evoked responses providing nerve conduction velocity and response amplitude data may be obtained via electrophysiology

- immediately prior to surgery (baseline)
- 5 minutes after constriction
- subsequent time points as required

Ultrasonic vocalization (USV) testing is also available as an add-on feature for this model, allowing for assessment of affective state