Neuropathic Pain: Spared Nerve Injury

CNS|CRO
Preclinical Neurological Disease Services

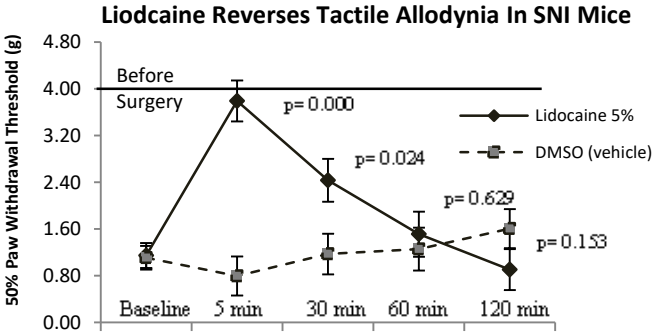
Model Overview

CNS|CRO`s rodent model of neuropathic pain provides a sensitive method for testing therapeutants aimed at modulating neuropathic pain pathways. Using a spared nerve injury (SNI) paradigm, this model allows for repeated testing as well as assessment of efficacy at various time points post-treatment. Additionally, several routes of test article administration, including intraplantar injection, topical, gavage, and intra-nasal application can be employed.

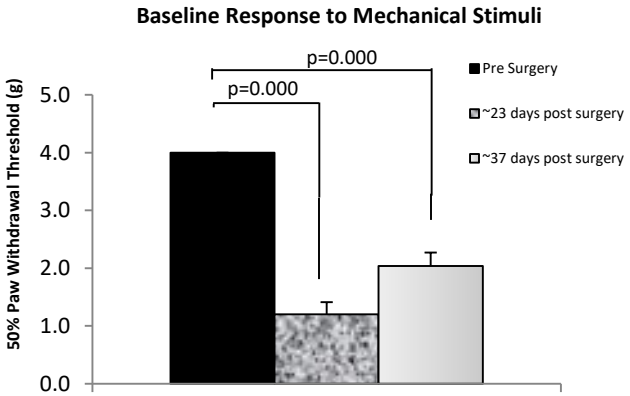
Differentiation & Advantages

- a reproducible, validated model of neuropathic pain
- tactile allodynia develops within a week of SNI and persists for at least 5 weeks post-surgery
- model may be reused following appropriate washout periods between trials
- various compound administration routes are available, including gavage, intra-nasal, intraplantar injection, and topical application
- allows for on-going compound efficacy monitoring, with testing time points ranging from short (minutes) to long (hours) term
- testing methods include mechanical allodynia assessments (Von Frey) and temperature sensitivity
- *in vivo* electrophysiology available as an add-on

Validation



Intraplantar injection of 5% lidocaine (20µg) alleviates the increased sensitivity response up to 30 minutes post-administration.



Post surgery SNI mice demonstrate persistent tactile allodynia as indicated by a statistically significant reduction in paw withdrawal threshold.

In vivo electrophysiology

Especially valuable for pain studies

Additional Measures (rat only):

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 damage
- 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