

PAIN AND INFLAMMATION

Carrageenan-induced Mechanical Hyperalgesia

Subcutaneously administered carrageenan (Cg) into the animal paw induces acute and persistent pain is a highly reproducible model. Mechanical hyperalgesia develops immediately following subcutaneous Cg injection, resulting from action of the release of pro-inflammatory mediators¹. Thus, Cg-induced mechanical hyperalgesia is largely used to test analgesic and/or anti-inflammatory agents in the processes of drug development.

Species: *Mus musculus* (Swiss);

Gender: Male and Female

Number of animals/group: 5-6 animals per group;

Route of administration: upon request;

Treatment mode: upon request;

Main Read-outs: Paw Withdrawal Threshold (g);

Validation Data

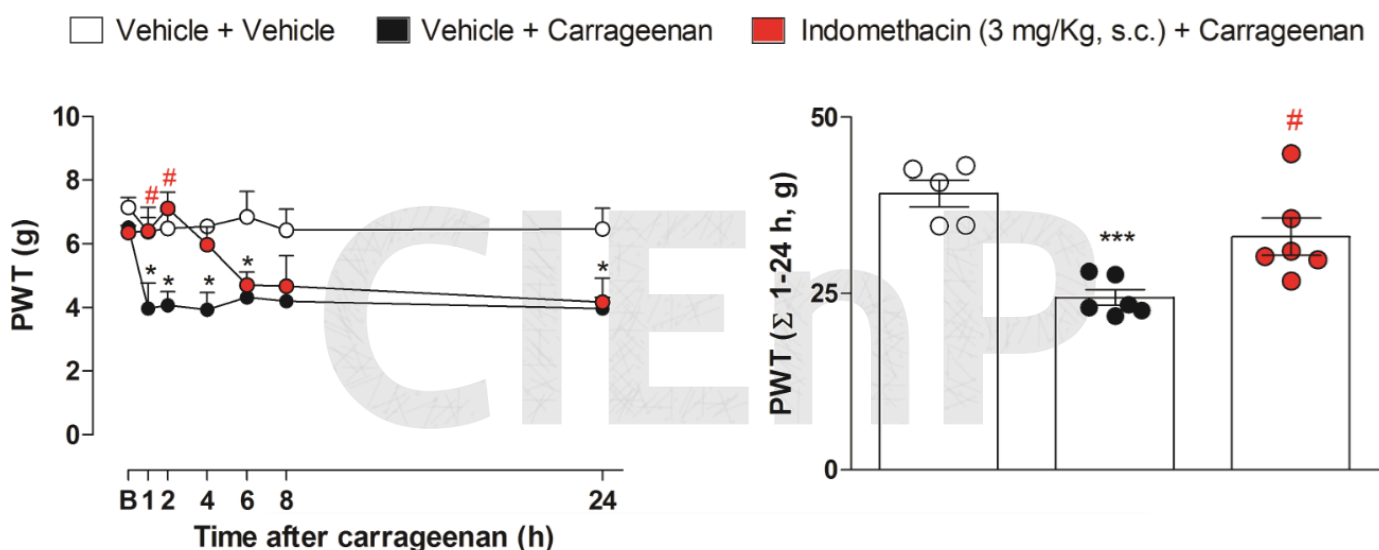


Figure: Carrageenan-induced mechanical hyperalgesia in mice. (A) Time course of paw withdrawal threshold (PWT) after carrageenan injection into mice paw. (B) Sum of PWT from 1 to 24 hours after carrageenan intraplantar injection. PWT thresholds were measured using electronic von Frey. Animals were treated with vehicle (filtrated water, 10 ml/Kg, s.c.) or with indomethacin (reference item, 3 mg/Kg, s.c.). One hour after treatment, carrageenan (300 µg/paw) or vehicle (sterile saline, 20 µL/paw) were administrated into mice paw and PWT were measured in different time points. Data are expressed as mean ± S.E.M. Statistical analysis was performed using two-way ANOVA followed by Bonferroni post hoc test (A) and one-way ANOVA followed by Tukey post hoc test (B). * indicates statistical significant difference compared to vehicle + vehicle group. *p<0.05 and ***p<0.001. # indicates statistical significant difference compared to vehicle + carrageenan group. #p<0.05. B = Basal.

To avoid bias and to allow reproducibility all in vivo experiments follow the ARRIVE guidances². Mice colony from Charles River Laboratories is breed and maintained in SPF conditions. The project includes study plan and final report. The experimental procedures was previously approved by the CIEnP Committee on the Ethical Use of Animals.

References:

¹ Cunha TM, Verri WA Jr, Silva JS, Poole S, Cunha FQ, Ferreira SH. A cascade of cytokines mediates mechanical inflammatory hypernociception in mice. Proc Natl Acad Sci U S A. 102(5):1755-60, 2005.

² Kilkenny C, Browne WJ, Cuthill IC, Emerson M, Altman DG. Animal research: reporting in vivo experiments: The ARRIVE guidelines. PLoS Biol. 8 (6): e1000412, 2010.