

PAIN AND INFLAMMATION

Arachidonic acid-induced ear edema in mice

Arachidonic acid is a precursor of inflammatory eicosanoids such as prostaglandin E2 (PGE2) and leukotrienes. Topical administration of arachidonic acid in ear of mice induces an acute edema¹. In addition, topical application of arachidonic acid in the ear induces signs of inflammation as erythema, extravasation of plasma proteins resulting in an increase in ear weight, and some neutrophil accumulation. Thus, arachidonic acid-induced ear edema is largely used to test anti-inflammatory agents in the processes of drug development.

Species: *Mus musculus* (CD1)

Number of animals/group: 8-10 animals

Route of administration: upon request:

Treatment mode: upon request

Main read-outs: Edema formation.

Facultative read-outs: Inflammatory mediators in ear homogenate, histopathology, immunohistochemistry, RT-PCR analysis and others.

Validation Data

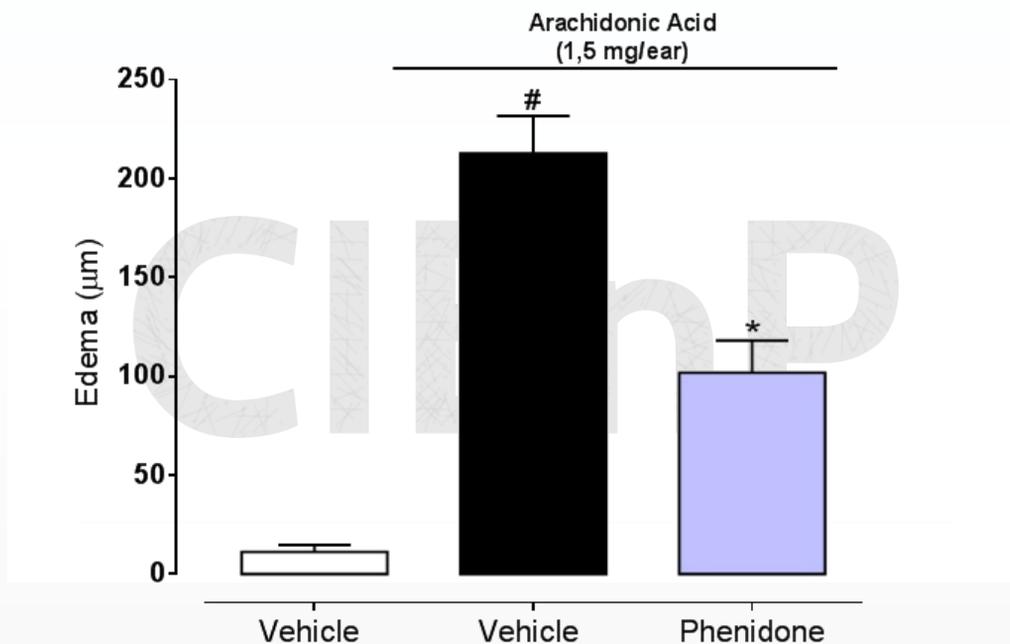


Figure: Arachidonic acid-induced ear edema in mice. Phenidone was used as reference item (control group). Each column represents the mean ± SEM. Statistical analyses used was one-way ANOVA with a post-hoc Newman-keuls. #, $P < 0.05$, versus vehicle + vehicle group and *, $P < 0.05$, versus arachidonic acid + vehicle group.

To avoid bias and to allow reproducibility all in vivo experiments follow the ARRIVE guidances². Mice and rat colonies from Charles River Laboratories are breed and maintained in SPF conditions. The project includes study plan and final report. Raw data are inspected by quality assurance unity. All experimental procedures are previously approved by the CIEnP Committee on the Ethical Use of Animals.

References:

¹Young JM, Spires DA, Bedord CJ, Wagner B, Ballaron SJ, De Young LM. The mouse ear inflammatory response to topical arachidonic acid. *J Invest Dermatol.* 1984 Apr;82(4):367-71.

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