Model Name
Dermatitis, Contact, Capsaicin-Induced

Item Number
554310

Introduction
Topical application of capsaicin on the ear of mice produces neurogenic skin inflammation, which is mediated by neuropeptides including substance P (SP), calcitonin gene-related peptide (CGRP), vasoactive intestinal peptide (VIP), and neurokinin A (NKA), released through activation of primary afferent sensory neurons. Capsaicin-induced acute inflammation in the mouse ear is commonly used to study the mechanisms of neurogenic skin inflammation and evaluate the therapeutic efficacy.

Procedure Summary
Male ICR mice weighing 22 ± 2 g are used. Capsaicin (1 mg in 20 µL of acetone) is applied topically to the anterior and posterior surfaces of the right ear. Test substances and the vehicle (20 µL/ear) are similarly applied 30 minutes before capsaicin. Ear swelling is measured by a dial thickness micrometer gauge at 30 minutes after capsaicin application. Ear edema is calculated by subtracting the thickness of the left ear (normal control) from right ear (treated ear) as an index of inflammation. Percentage inhibition is calculated according to the formula: (Ic – It)/Ic x 100, where Ic and It refers to the increase of ear thickness (mm) both in the control and treated animals. One-way ANOVA and Dunnett’s test are applied for comparison between treated and vehicle control groups. Significance is considered at p<0.05.

Suggested Testing
• n=6/group (study design dependent)
• Doses may be administered TOP, PO, IV, IP, and SC
• Assessments available: Body weight, Ear thickness, Ear weight, Biomarker analysis (protein or mRNA) and Histopathology

Turnaround Time(s)
• Acute Assay: In-Life completion in 2-4 weeks from sample receipt
• For Subacute Assays: 6 weeks to 3 months

Literature

Related Assay(s) (Item # - Assay Name - Species)
554010 - Dermatitis, Contact, Arachidonic Acid-Induced - Mouse
555010 – Dermatitis, Contact, Phorbol Ester-Induced - Mouse
554510 – Dermatitis, Contact, Croton Oil-Induced - Mouse
555510 - Dermatitis, Contact, Oxazolone-Induced - Mouse

Modified Protocols
We will readily accommodate client-specified alterations.

Laboratory
These assays are performed at our AAALAC accredited laboratory in Taipei.

For current details about our Company address and contact information, please reference our website http://www.pharmacologydiscoveryservices.com/company-info/
Animal Welfare
All aspects of this work are performed in general accordance with the Guide for the Care and Use of laboratory animals (National Academy Press, Washington, DC, 2011). The study protocol was approved by the Pharmacology Discovery Services IACUC and is performed with the oversight of veterinarians to assure the humane treatment of laboratory animals.

Reference Compounds
Dexamethasone, Capsazepine

Graph

*P<0.05, treated vs. vehicle control; one-way ANOVA followed by Bonferroni's test.

Last modified September 11, 2018