Model Name
Arthritis, Collagen-Induced (CIA), Mouse

Item Number
553680

Introduction
Rheumatoid arthritis (RA) is a chronic inflammatory disorder that causes pain, swelling, stiffness and loss of function in joints. Adjuvant-induced arthritis (AIA) and collagen-induced arthritis (CIA) are commonly used to study the mechanisms of inflammatory joint disease and evaluate the therapeutic efficacy.

Procedure Summary
Groups of 8 male DBA/1 mice at 8-12 weeks of age are used. The animals are challenged with bovine or chicken type-II collagen emulsified with Complete Freund's adjuvant (CFA) on Day 0 (0.1 mg/0.1 mL/mouse, intradermally (ID) at the base of the tail) and boosted i.d. on Day 21 with collagen emulsified with IFA instead of CFA (0.1 mg/0.1 mL/mouse). Animals are stratified into groups of 8 each, based on the volume of two hind paws on Day 29. Test article, Dexamethasone (0.3 mg/kg), and vehicle are administered orally (PO) once daily for 14 consecutive days from Day 29 to Day 42. Arthritis is assessed by using a qualitative severity score system and hind paw volume (mL) measured with a plethysmometer on Days 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41 and 43. Two-way ANOVA followed by Bonferroni's test is applied for comparison between vehicle and treatment groups. p<0.05 is considered significant.

Animals are examined for visual for signs of joint inflammation and scored as follows:

Score Criteria:
0 Normal
1 Mild, but definite redness and swelling of the ankle or wrist, or apparent redness and swelling limited to individual digits, regardless of the number of affected digits
2 Moderate redness and swelling of ankle or wrist
3 Severe redness and swelling of the entire paw including digits
4 Maximally inflamed limb with involvement of multiple joints

Suggested Testing
• n=8/group (study design dependent)
• Doses may be administered PO, IV, IP, and SC
• Assessments available: Body weight, Paw Volume, Clinical Assessment, Biomarkers and Histology

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

Literature

Related Assay(s) (Item # - Assay Name - Species)
553010 - Arthritis, Adjuvant-Induced (AIA) – Rat
553700 - Arthritis, Collagen-Induced (CIA) - Rat
553600 - Arthritis, Collagen mAB-Induced (CAIA) - Mouse
553510 - Inflammation, Carrageenan – Mouse
553520 - Inflammation, Carrageenan – Rat

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Modified Protocols
We will readily accommodate client-specified alterations.

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

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 Compound
Dexamethasone

Last modified February 6, 2019