Model Name
Pulmonary, Lipopolysaccharide-Induced Neutrophilia, Mouse

Item Number
572100

Introduction
Pulmonary neutrophil activation by LPS is used as an in vivo model for allergic asthma, bronchitis and/or chronic obstructive pulmonary disease (COPD). LPS initiates neutrophil activation and release of proinflammatory cytokines, TNF and IL-6, followed by neutrophil infiltration into the bronchoalveolae mediated by chemokines such as IL-8 and CXCL5. Subsequent localized pulmonary injury and inflammation is then further exacerbated by activation of p38 kinase/cJun kinase pathways, metalloproteinases, leukotrienes and iNOS resulting in pulmonary congestion.

Procedure Summary
Male BALB/c mice weighing 20 to 22 g are used. Test substance is administered orally to a group of 5 animals 2 hours before challenge with ~80 g/kg of E. Coli lipopolysaccharide (LPS in sterile saline, 2 µg in 20 µl per mouse intratracheally). Mice are anaesthetized by propofol (10 mg/ml, 50 µl/mouse, i.v.) 24 hours after LPS challenge, 0.25 ml of phosphate buffered saline (PBS) is administered twice through a tracheal cannula after which about 0.3 ml of bronchoalveolar lavage fluid (BALF) is obtained. Differential cell counts are determined by an automatic hematology analyzer (Sysmex, XT-2000iV), Total cell number/mL and % neutrophils in BALF are then determined and One-way ANOVA followed by Dunnett’s test is used to determine possible significant difference at P< 0.05.

Suggested Testing
- n=5/group (study design dependent)
- Anti-inflammatory effects assessed at an initial dose of 100 mg/kg
- Dosing volume at 10 mL/kg

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)
553510 - Inflammation, Carrageenan - Mouse
553520 - Inflammation, Carrageenan - Rat
553600 - Inflammation, Collagen Arthritis, mAb - Mouse
554010 - Inflammation, Topical, Arachidonic Acid - Mouse
554510 - Inflammation, Topical, Croton Oil - Mouse
555510 - Inflammation, Topical, Oxazolone - Mouse
555010 - Inflammation, Topical, Phorbol Ester - Mouse
576750 - Septic Shock, Lipopolysaccharide - Rat

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 is 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(s)**

Dexamethasone 21-acetate

**Graph(s)**

Last modified September 15, 2017