Model Name
Septic Shock, Cecal Ligation and Puncture

Item Number
576680

Introduction
Sepsis results from a complex and dynamic pathophysiology. The cecal ligation and puncture (CLP) mouse model in sepsis research is the most widely used model for experimental sepsis. CLP-induced sepsis is commonly used to study the mechanisms of inflammation and evaluate the therapeutic efficacy.

Procedure Summary
Groups of 10 male ICR mice weighing 32 ± 2 g are used. Mice are anesthetized with ketamine (100 mg/kg i.p.) combined with xylazine (10 mg/kg i.p.) and inject subcutaneously with 1 ml of 2.5% Dextrose/0.45% NaCl. The abdomen is shaved and swabbed with 75% alcohol then laparotomy is performed. The exposed cecum is ligated with 4-0 silk suture at the base below the ileocecal junction, gently puncture twice with a 21-G needle and squeeze to extrude a small amount of stool. The abdomen is then closed in two layers with 4-0 silk suture and swabbed with iodine. Mortality of the vehicle group is 70 to 100%. Vehicle and imipenem are administered subcutaneously 2 hr after surgery and twice per day for 3 days. Mortality is recorded twice a day during the following 6 days. Improved overall survival rate by 30 percent or more (≥30, in-house criteria) relative to the vehicle control indicates significant protection shown in parentheses. *P<0.05, vs vehicle group by Fisher's exact test.

Suggested Testing
• n=10/group (study design dependent)
• Doses may be administered TOP, PO, IV, IP, and SC
• Assessments available: Body weight, Mortality, Cell populations by FACS, 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)
576700 - Septic Shock, Lipopolysaccharide, Mouse - Mouse
576710 - Septic Shock, Lipopolysaccharide (without galactosamine), Mouse - Mouse
576750 - Septic Shock, Lipopolysaccharide, Rat - 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)
Imipenem

Graph(s)

*P<0.05, treated vs. vehicle control; Fisher's exact test.

Last modified December 22, 2017