Model Name
Chronic Liver Fibrosis, Carbon Tetrachloride (CCl4) Induced, Rat

Item Number
546060

Introduction
Carbon tetrachloride (CCl4) is widely used to experimentally induce liver injury in rodents. A single dose of CCl4 leads to necrosis and steatosis, while prolonged administration leads to liver fibrosis, cirrhosis, and HCC. This study is to investigate the anti-inflammatory and anti-fibrosis effects on CCl4-induced hepatotoxicity in rat.

Procedure Summary
Groups of 6 male Wistar rats weighing 250 ± 20 g are used. Liver fibrosis of rats are induced by intragastrical administration (PO) of CCl4 (20% in olive oil, 0.5 mL/rat) twice a week for a total of 8 weeks start from Week 2. Test substance and the vehicle are administered PO once daily to the test animals during the 9 weeks of experiment period. Serum alanine aminotransferase (ALT), aspartate aminotransferase (AST) levels are determined for evaluation of hepatic impairment by Toshiba automatic analyzer (TBA-120FR) on Day 8 (prior to CCl4), Day 15, Day 29, Day 50 and the end of the experiment (Day 64, 72 h post the last challenge of CCl4). At the termination of the experiment, test animals are sacrificed 72 hrs after the last CCl4 administration, blood samples are collection for serum alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), total cholesterol (T-CHO), total bilirubin, serum albumin levels and Triglyceride (TG) levels detection. Liver specimens will be harvested for hepatic hydroxyproline content determination. In addition, liver and body weight of test animal are recorded and calculated (g liver/100 g B.W.) as a reference parameter for hepatotoxicity. 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 PO, IV, IP and SC
• Assessments available: Body weight, ALT, AST, ALP, T-BIL and ALB levels, Liver weight, Biomarker analysis (protein or mRNA) and Histopathology

Turnaround Time(s)
• For Acute Assays: 4 weeks from sample receipt
• For Subacute Assays: 6 weeks to 3 months

Literature
Ming-Fang Wu et al. J Biomed Lab Sci. 23 (3):90-95, 2011
Tarek K et al. Nutrition & Metabolism 8: 40, 2011

Related Assay(s) (Item # - Assay Name - Species)
546050 - Chronic Liver Fibrosis, Carbon Tetrachloride (CCl4) with Phenobarbital Induced - 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 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.

Last modified November 20, 2017