Model Name
Glucose, Blood, OGTT, Mouse

Item Number
540100

Introduction
The glucose tolerance test is a medical test in which glucose is given and blood samples taken afterward to determine how quickly it is cleared from the blood. The test is usually used to test for diabetes, insulin resistance, impaired beta cell function, and sometimes reactive hypoglycaemia and acromegaly, or rarer disorders of carbohydrate metabolism.

Procedure Summary
Groups of 6 ICR or C57BL/6 derived mice, male or female weighing 22 ± 4 g, are fasted overnight (~16 hours) and are used. Test substance is administered to test animals 30 minutes before oral glucose (1g/kg) loading. Blood is collected from tail vein and the blood glucose is measured by a Glucometer (OptiumTM XceedTM Diabetes Monitoring System, Abbott) at -30 (pretreatment), 0 (before glucose loading), 30, 60, 90 and 120 minutes after glucose loading. The area under the curve over 120 min (AUC0~120 min) is determined. In addition, the peak blood glucose is compared at all time-points. Two-way ANOVA followed by Bonferroni's test is employed to ascertain significant difference between treatment groups and vehicle. Significant difference is considered at P<0.05.

Suggested Testing
• n=6/group (study design dependent)
• Doses may be administered PO, IV, IP and SC

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

Literature

Related Assay(s) (Item # - Assay Name - Species)
540110 – Glucose, Blood, Oral Glucose Tolerance Test (OGTT) – 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.
Reference Compounds
*Glibenclamide, Insulin, Metformin

Graph

Serum glucose levels (mg/dL)

-30 0 15 30 60 90 120

Vehicle (2% Tween 80), 10 ml/kg, PO
Glibenclamide, 1 mg/kg, PO

Treatment Glucose loaded

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

Last modified October 1, 2018