**Model Name**  
Glucose, Blood, OGTT, Rat

**Item Number**  
540110

**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 Wistar or Sprague Dawley (SD) rats, male or female weighing 200 ± 40 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, 0 (baseline before glucose loading), 30, 60, 90 and 120 minutes post glucose loading. The area under the curve over 120 min (AUC0~120 min) is also determined. In addition, the peak blood glucose is compared at all time-points. One-way or two-way ANOVA 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**  
Chen et al. J Pharmacol Exp Ther. 334: 164-170, 2010

**Related Assay(s) (Item # - Assay Name - Species)**  
540110 – Glucose, Blood, Oral Glucose Tolerance Test (OGTT) – Mouse

**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.

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Reference Compounds
*Glibenclamide, Insulin, Metformin

Graph

Serum glucose levels (mg/dL)

Time (minutes)

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

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