



UC Davis MMPC-Live Protocol

Glucose-stimulated Insulin Secretion (*in vivo*)

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Summary:

The *in vivo* glucose-stimulated insulin secretion test is designated to determine alterations in insulin secretion by the pancreas upon a bolus IP glucose injection.

Reagents and Materials:

<i>Reagent/Material</i>	<i>Vendor</i>	<i>Stock Number</i>
45% Glucose solution	Fisher Scientific	NC0025179
Insulin Syringes	Fisher Scientific	14-826-79
Saline Solution	Fisher Scientific	L97753
Ultra Sensitive Mouse Insulin ELISA kit	Crystal Chem	90080
Heparin Sodium	Abraxis	401586B
Easy Check Glucose test strips	JRS Medical	00-101
Easy Check Glucose monitor	JRS Medical	Y4209

Protocol:

1. Fast mice for 16hours by taking away food the day before (3:00pm)
2. The following day, Calibrate the glucose meter according to the manufacturer's instructions.
3. Deprive mice from water then measure blood glucose level using a glucometer and remove immediately approximately 50 μ l of blood from the tail via a tail tip cut and transfer directly onto a sterile 0.5ml microcentrifuge tube containing 2ul Heparin.
4. Centrifuge at 8000rpm for 5min then transfer plasma (supernatant) to a new 0.5ml microcentrifuge tube and freeze at -80°C.
5. Give the mouse an intraperitoneal injection of Glucose (2g/kg) with a 27 G needle
6. Continue to take blood samples from the initial tail cut at 2, 5, 15 and 30 min following injection and repeat step3 and 4.

NOTE: At the end of the experiment, wipe tail with 70% alcohol and allow drying. Ensure that blood loss from the tail stopped before placing the animal back to its cage.

Reagent Preparation:

- Dilute the glucose stock solution (45%) with saline to 20% by adding 20ml stock to 25ml 0.9% (w/v) sterile saline.