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UC Davis - IN-VIVO Glucose-stimulates Insulin Secretion Test

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Protocol status: Working

We use this protocol and it's working

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Abstract

Summary:

An in-vivo glucose-stimulates insulin secretion test is designated to determine alterations in insulin secretion by the pancreas upon a bolus IP Glucose injection.

Materials

MATERIALS

⊗ 45% Glucose solution **Fisher Scientific Catalog #NC0025179**(50-165-7017 replaced)

⊗ Insulin Syringes **Fisher Scientific Catalog #14-826-79**

⊗ Saline Solution **Fisher Scientific Catalog #L97753**

⊗ Ultra Sensitive Mouse Insulin ELISA kit **Crystal chem Catalog #90080**

⊗ Heparin Sodium **Abraxis Catalog #401586B**

⊗ Easy Check Glucose test strips **JRS Medical Catalog #00-101**(new SKU 88982400)

⊗ Easy Check Glucose monitor **JRS Medical Catalog #Y4209** (new SKU 88972401)

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

Note:

Fisher Scientific, RRID:SCR_008452

Ultra Sensitive Mouse Insulin ELISA kit, Cite this, (Crystal Chem Cat# 90080, RRID:AB_2783626)

- 1 Fast mice for 16 hours 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 flowing injection and repeat step3 and 4.
- 7 **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.