May 15, 2019

Working

UC Davis - Intraperitoneal Insulin Tolerance Test

Fawaz G. Haj[1]

[1]University of California, Davis

dx.doi.org/10.17504/protocols.io.yp5fvq6

Mouse Metabolic Phenotyping Centers
Tech. support email: **info@mmpc.org**

Lili Liang

ABSTRACT

Summary:

An intraperitoneal insulin tolerance test or ipITT is designed to determine the sensitivity of insulin-responsive tissues in the rodent. This is determined by measurement of glucose remaining in the circulation over time after a bolus ip insulin injection.

EXTERNAL LINK

https://mmpc.org/shared/document.aspx?id=84&docType=Protocol

MATERIALS

NAME	CATALOG #	VENDOR
Humalin® R	R-100	Eli Lilly
Insulin Syringes	14-826-79	Fisher Scientific
Saline Solution	L97753	Fisher Scientific
Easy Check Glucose test strips	00-101(new SKU 88982400)	JRS Medical
Easy Check Glucose monitor	Y4209(new SKU 88972401)	JRS Medical

MATERIALS TEXT

Reagent Preparation:

Dilute the stock solution (100 U/ml) with saline to 0.5 U/mL (1/200 dilution) by adding 5µl stock (100 U/mL) to 995 µl 0.9% (w/v) sterile saline

1 Fast mice for 4 h only by taking away food early in the morning (7:00am).

2 Calibrate the glucose meter according to the manufacturer's instructions.

3 Deprive mice from water then remove approximately 5µl of blood (one drop) from the tail via a tail tip cut and transfer directly onto a glucose indicator strip.

4 Measure blood glucose immediately in a glucometer.

5 Give the mouse an intraperitoneal injection of insulin (0.5 U/kg) with a 27 G needle.

6 Continue to take blood samples from the initial tail cut before the insulin injection and at 15, 30, 45, 60 and 120 min.
Between each of these time points, return the mouse to its cage and monitor it every minute.

7 **NOTE:**

1-The mouse is given an intraperitoneal injection with a 27G needle of insulin. Before performing the experiment, we will have to determine if the mouse strain is insulin resistant or glucose tolerant, so as to avoid giving the wrong dose of insulin.

2-For insulin resistant mice, a higher dose of insulin could be used as they do not respond as well as insulin sensitive mice to insulin. However, we will make sure that the dose of insulin used will not cause hypoglycemia.

3-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.