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Working

U Mass - Glucose Tolerance Test with insulin secretion [↗](#)

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ABSTRACT

Summary:

Glucose tolerance test with insulin secretion measures systemic clearance of glucose and systemic appearance of insulin following an intraperitoneal bolus injection of 20% dextrose. This experiment measures insulin sensitivity and insulin secretion (pancreatic β -cell function) in awake mice assuming that there are no alterations in systemic insulin clearance. Insulin sensitivity and pancreatic β -cell function are altered in obese mice.

EXTERNAL LINK

<https://mmpc.org/shared/document.aspx?id=142&docType=Protocol>

MATERIALS

NAME	CATALOG #	VENDOR	CAS NUMBER	RRID
20% Dextrose injection USP	NDC0409-7935-19	Hospira(Pfizer)		
Insulin Ultrasensitive ELIZA	80-INSMSU-E01	Alpco		AB_2792981

MATERIALS TEXT

Note:

Hospira, [RRID:SCR_003985](#)

Insulin Ultrasensitive ELIZA, Cite this, (Alpco Diagnostics Cat# 80-INSMSU-E01, [RRID:AB_2792981](#))

- 1 Mice may be fasted overnight (~15 hours) or for 5 hours prior to the start of experiment.
- 2 Collect plasma sample (20 μ l) before the start of experiment (basal-0 min) to measure basal glucose and insulin levels.
- 3 Administer intraperitoneal injection of 20% dextrose (1 or 2 g/kg body weight) using an insulin syringe.
- 4 Collect plasma samples (20 μ l) at 10, 20, 30, 60, 90, and 120 min following injection to measure circulating glucose and insulin concentrations.
- 5 For data analysis, plasma glucose levels vs. time after injection are plotted, and area-under-curve may be calculated to estimate insulin sensitivity. Also, plasma insulin levels vs. time after injection are plotted, and area-under-curve may be calculated to estimate insulin secretion (pancreatic β -cell function).



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