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U Mass - Glucose Tolerance Test

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Protocol status: Working

We use this protocol and it's working

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Abstract

Summary:

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

Materials

MATERIALS

 20% Dextrose injection USP **Pfizer (Hospira) Catalog #NDC0409-7935-19**

Note:

Hospira, RRID:SCR_003985

- 1 Mice may be fasted overnight (~15 hours) or for 5 hours prior to the start of experiment.
- 2 Collect plasma sample (10 μ l) before the start of experiment (basal-0 min) to measure basal glucose levels.
- 3 Administer intraperitoneal injection of 20% dextrose (1 or 2 g/kg body weight) using an insulin syringe.
- 4 Collect plasma samples (10 μ l) at 10, 20, 30, 60, 90, and 120 min following injection to measure circulating glucose 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.
- 6 Area-under-curve of glucose tolerance test may be inversely correlated with insulin sensitivity assuming unaffected insulin secretion and pancreatic β -cell function in mice.