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U Mass - Insulin clearance

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Protocol status: Working

We use this protocol and it's working

Created: February 13, 2019

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Keywords: Insulin clearance, glucose, lipid metabolism, insulin clearance test measure systemic clearance of insulin, hepatic clearance of insulin, systemic insulin clearance, majority of systemic insulin clearance, alterations in insulin clearance, insulin clearance summary, insulin clearance, insulin clearance test measure, hepatic clearance, insulin, systemic clearance, other mouse models of altered metabolism, portal circulation, bolus injection, liver, altered metabolism, metabolism, obesity

Abstract

Summary:

Insulin clearance test measure systemic clearance of insulin following a bolus injection. Liver accounts for the majority of systemic insulin clearance following secretion from pancreatic β - cells into portal circulation. Hepatic clearance of insulin may be affected by obesity and in other mouse models of altered metabolism. Alterations in insulin clearance may also affect glucose and lipid metabolism.

Materials

MATERIALS

 Insulin **Novolin Catalog** #Regular human insulin, U-100

 Insulin Ultrasensitive ELIZA **Alpco Catalog** #80-INSMSU-E01

Note:

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

- 1 Mice are fasted 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 insulin and glucose levels.
- 3 Administer intraperitoneal injection of insulin (0.5 or 0.75 unit/kg body weight) using an insulin syringe.
- 4 Collect plasma samples (10 μ l) at 10, 20, 30, 60, 90 and 120 min for the measurement of plasma insulin concentrations.
- 5 For data analysis, plasma insulin levels vs. time after insulin injection are plotted, and area-under-curve may be calculated to estimate systemic insulin clearance.