Hepatic gluconeogenesis

Version: 1
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(note that the following list should be linked to the appropriate location.)

Summary: *(This area will include a brief description of what the protocol is used for and why someone would need to use it.)*

Hepatic gluconeogensis is estimated using pyruvate tolerance test that measures systemic elevation of glucose partly derived from pyruvate and hepatic gluconeogensis following an intraperitoneal bolus injection of pyruvate in awake mice. Hepatic gluconeogenesis is affected by obesity and regulates glucose homeostasis.

Reagents and Materials: *(This should be a comprehensive list of stock solutions and material. The reagent list for the stock solutions is included in the reagent preparation area that is included at the end of this SOP.)*

Reagent/Material	Vendor	Stock Number
Sodium Pyruvate	Sigma	P5280

Protocol:

1. Mice are fasted overnight (~15 hours) prior to the start of experiment.
2. Collect plasma sample (10 µl) before the start of experiment (basal-0 min) to measure basal glucose levels.
3. Administer intraperitoneal injection of pyruvate (1 g/kg body weight) using an insulin syringe.
4. Collect plasma samples (10 µl) at 10, 20, 30, 45, 60, 90, and 120 min following pyruvate injection to measure circulating glucose concentrations.
5. For data analysis, plasma glucose levels vs. time after pyruvate injection are plotted, and area-under-curve may be calculated to estimate hepatic gluconeogenesis.

Reagent Preparation: *(This area may have several different preparations with the table of contents below.)*

Reagent 1: 10 % Pyruvate in PBS
Reagents and Materials: Sodium pyruvate, PBS (phosphate buffered saline)
Procedure: Dissolve 1 g of sodium pyruvate in 10 ml PBS