



May 10, 2019

U Mass - Hepatic gluconeogenesis

DOI

<https://dx.doi.org/10.17504/protocols.io.xy7fpzn>



Jason Kim¹

¹University of Massachusetts

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



Lili Liang

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.xy7fpzn>

External link: <https://mmpc.org/shared/document.aspx?id=144&docType=Protocol>

Protocol Citation: Jason Kim 2019. U Mass - Hepatic gluconeogenesis. [protocols.io](https://dx.doi.org/10.17504/protocols.io.xy7fpzn)
<https://dx.doi.org/10.17504/protocols.io.xy7fpzn>



License: This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working

We use this protocol and it's working

Created: February 11, 2019

Last Modified: May 10, 2019

Protocol Integer ID: 20223

Keywords: Hepatic gluconeogenesis, obesity, hepatic gluconeogenesis, hepatic gluconeogenesis summary, hepatic gluconeogenesis, systemic elevation of glucose, glucose homeostasis, pyruvate tolerance test, using pyruvate tolerance test, glucose, intraperitoneal bolus injection of pyruvate, pyruvate, obesity

Abstract

Summary:

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

Materials

MATERIALS

 Sodium Pyruvate Merck MilliporeSigma (Sigma-Aldrich) Catalog #P5280

Reagent Preparation:

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

Note:

Sigma-Aldrich, [RRID:SCR_008988](#)

- 1 Mice are fasted overnight (~15 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 pyruvate (1 g/kg body weight) using an insulin syringe.
- 4 Collect plasma samples (10 μ l) 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.