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Working

U Mass - Lipid metabolism

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ABSTRACT

Summary:

Lipid metabolism is estimated by measuring systemic clearance of [1-^{14}C] palmitate following a bolus injection in awake mice. Lipid metabolism is altered in obese mice.

EXTERNAL LINK

https://mmpc.org/shared/document.aspx?id=145&docType=Protocol

MATERIALS

NAME	CATALOG #	VENDOR	CAS NUMBER	RRID
Palmitic Acid [1-14C]	NEC075H250UC	Perkin Elmer		

1 Survival surgery is performed to establish a chronic indwelling catheter at 5~6 days prior to experiment for intravenous infusion. (refer to M1023: Surgery-jugular vein cannulation)

2 Mice are fasted overnight (~15 hours) or for 5 hours prior to the start of experiment.

3 Place a mouse in a rat-size restrainer with its tail tape-tethered at one end.

4 Expose and flush the intravenous catheter using saline solution. Then, connect the catheter to the CMA Microdialysis infusion pump.

5 Collect plasma sample (10 µl) before the start of experiment (basal-0 min) to measure basal glucose levels.

6 Administer a bolus intravenous injection of 20 µCi of [1-^{14}C] palmitate to start the experiment.

7 Rapidly collect plasma samples (10 µl each) at 0.5, 1, 2, 3, 4, and 5 min after injection to measure systemic [1-^{14}C] palmitate concentrations.

8 At the end of experiment, mice are euthanized, and tissues may be collected for further studies.

9 For data analysis, plasma [1-^{14}C] palmitate levels vs. time after palmitate injection are plotted, and area-under-curve may be calculated to estimate systemic clearance of labeled-palmitate and lipid metabolism.