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## U Mass - Lipid metabolism

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**Protocol status:** Working

**We use this protocol and it's working**

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## Abstract

### Summary:

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

## Materials

### MATERIALS

 Palmitic Acid [ $1\text{-}^{14}\text{C}$ ] Perkin Elmer Catalog #NEC075H250UC

## Troubleshooting

- 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  $\mu$ l) before the start of experiment (basal-0 min) to measure basal glucose levels.
- 6 Administer a bolus intravenous injection of 20  $\mu$ Ci of [1- $^{14}$ C] palmitate to start the experiment.
- 7 Rapidly collect plasma samples (10  $\mu$ l 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.