

May 13, 2019

UC Davis - Adiposity

DOI

dx.doi.org/10.17504/protocols.io.ybsfsne



Jon Ramsey¹

¹University of California, Davis

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.ybsfsne>

External link: <https://mmpc.org/shared/document.aspx?id=284&docType=Protocol>

Protocol Citation: Jon Ramsey 2019. UC Davis - Adiposity. protocols.io <https://dx.doi.org/10.17504/protocols.io.ybsfsne>



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 19, 2019

Last Modified: May 13, 2019

Protocol Integer ID: 20562

Keywords: Mice, fat pads, adiposity, major fat pads of mice, major fat pad, adiposity summary, fat, mice

Abstract

Summary:

The major fat pads of mice will be dissected and weighed. This approach provides a way to determine if an intervention has an impact on specific depots of fat.

Materials

Reagents and Materials:

- Scalpel
- Surgical scissors
- Tweezers
- Disinfectant solution (70% isopropanol or 70% ethanol)
- Gloves
- Small weigh boats
- Scale (readability at 0.001g)
- Liquid nitrogen (if tissues are being kept for biological assays)

Troubleshooting

Before start

The procedures follow those of Johnson and Hirsch (Johnson PR, Hirsch J. Cellularity of adipose depots in six strains of genetically obese mice. J Lipid Res 13, 2-11, 1972)

<http://www.ncbi.nlm.nih.gov/pubmed/5059196?dopt=Abstract> with a few modifications.

Another great resource is the dissection protocol at the Boston NORC (with pictures and commentary):

<http://bnorc.org/cores/protocols/dissectionx/>

- 1 Body weight of animal is taken before anesthesia.
- 2 The mouse is euthanized according to the methods approved in the study's IACUC protocol.
- 3 A midline incision is made to open the abdominal cavity.
- 4 Forceps are used to pull up the epididymal fat pad (males). The fat pad is cut just above the epididymis and removed.
- 5 The parametrial fat pad (females) is cut at the base of the uterus and separated from the horn and ovary.
- 6 The kidneys are pulled toward the midline to allow the retroperitoneal fat pad to be visualized. The method of Johnson and Hirsch is followed, except fat that extends past the lower pole of the kidney is also removed if it is not surrounding the kidney (perirenal).
- 7 The kidneys are removed from the abdominal cavity and the white fat surrounding each kidney is dissected.
- 8 Using fingers, the mesenteric fat is stripped from the duodenum to the colon.
- 9 After all abdominal fat pads are dissected, the animal is skinned and any fat between the muscle and skin is carefully dissected.
- 10 Adipose tissue in the intrascapular region is dissected. Care is taken to remove white adipose tissue covering the brown adipose tissue. The brown adipose depot is dissected and cleaned of visible white adipose tissue.
- 11 Each tissue's weight is recorded. Left and right pad weights are combined for total pad weight.
- 12 Total white adipose tissue (WAT) is calculated by summing the weights of the gonadal (epididymal or parametrial), retroperitoneal (including perirenal), mesenteric, and subcutaneous depots. % body fat can be calculated by dividing wt of fat tissue by body weight of animal.