

Body Composition

Equipment: **PIXI-mus Small Animal Densitometer** (manufactured by LUNAR, Madison, WI)
<http://www.gemedicalsystems.com/rad/bonedens/peripheral/piximus.html>

Supplies: - PIXI-mus trays
 - isoflurane inhalation anaesthetic
 - weigh scale

General Information:

The PIXI-mus small animal densitometer generates low energy x-rays which are directed through the subject to a radiation detector. The detected radiation is digitally processed, and an image is displayed on a monitor. The PIXI-mus software analyzes the image and separates the selected body region (whole or partial body) into bone or soft tissue. The reported bone variables include:

BMD = Bone Mineral Density (g/cm²)
BMC = Bone Mineral Content (grams)
Area (cm²)

The reported tissue variables include:

Lean (grams)
Fat (grams)
Total (grams)
% Fat (%)

Mice:

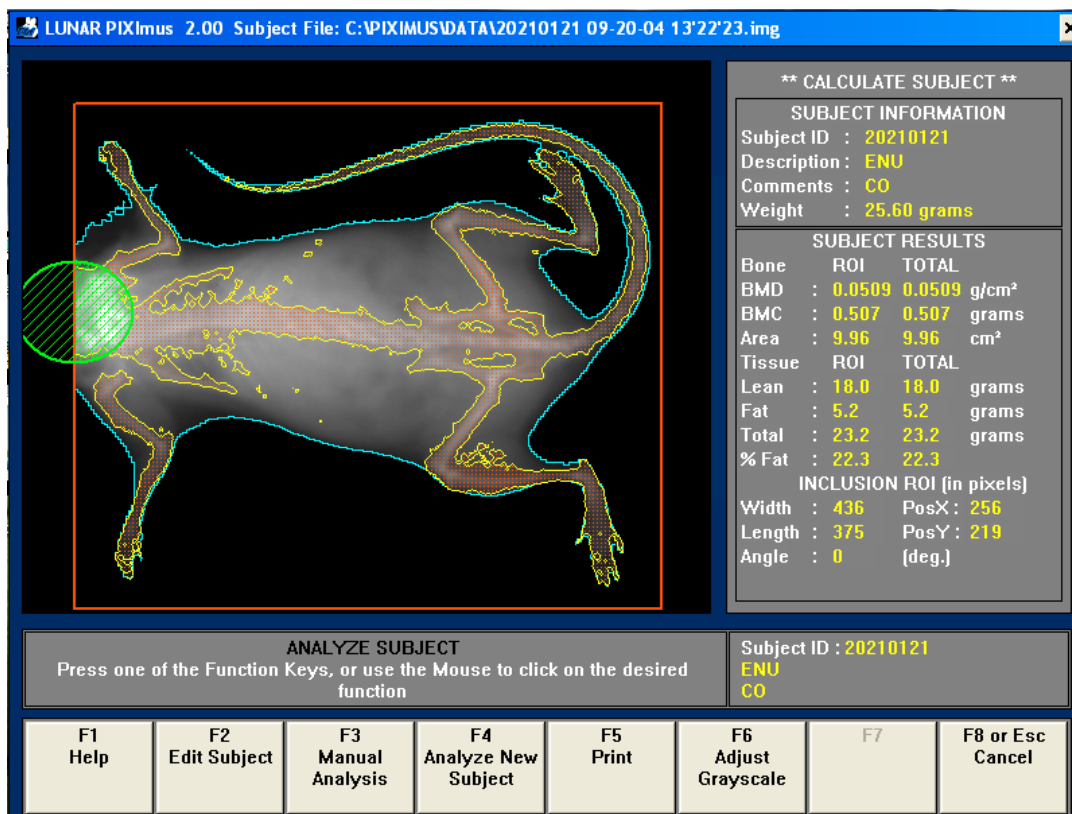
The CMHD screening lab normally tests live mice, according to the procedure below. Live mice from outside laboratories can be tested following submission of a “clean” health status report. Follow the directions in the Physiology Services section. Dead mice can also be analyzed. They may be frozen for shipping and are thawed overnight in the refrigerator to give data that is close to the live mouse. Body position is important for optimum results. Mice should be positioned with the legs slightly outstretched and the soles of the feet down as best possible; the tail may be included by curling it around the body or it can be left straight and excluded from the analysis. Note the position in the image below.

Procedure:

Mouse body weight is recorded prior to performing the densitometry scan. In order to record an accurate PIXI-mus image, a mouse must remain still during the x-ray procedure. Therefore, the mouse is briefly anaesthetized with 2% isoflurane in 700 mL O₂/minute (induced in a chamber at 5% isoflurane and maintained by face mask). It takes approximately 10 minutes to anesthetize the mouse, take the x-ray and have the mouse wake-up. The standard procedure is to include the mouse’s tail and exclude the mouse’s head from the image and analysis. An image from the PIXI-mus program of a mouse following x-ray exposure is shown below to illustrate the proper positioning of the mouse as well as exclusion of the skull.

Reported Results:

For each mouse imaged, a PIXIMUS BONE DENSITY REPORT is generated.



Acknowledgements:

The CMHD requests that the users of our screening service acknowledge the technical assistance of our facility in any presentations or publications that report results generated by our services. A suitable acknowledgement for publications is as follows: "The authors would like to acknowledge the Samuel Lunenfeld Research Institute's CMHD Mouse Physiology Facility for their technical screening services (www.cmhd.ca)."

Additionally, please send reprints or information on such publications or presentations when they are submitted or available. Such acknowledgements will help promote the use of our service and assist us in obtaining continued financial support to help defray service fees.