



MMMPP
Melbourne Mouse Metabolic
Phenotyping Platform



Minispec MRI body composition analysis

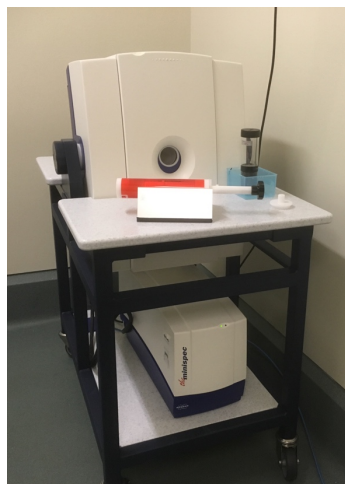
1. Experiment

Mouse body composition analysis using TD-NMR minispec

2. Aim

To measure fat mass, lean mass and free liquid composition

3. Equipment



The Bruker LF50H Minispec uses Time Domain Nuclear Magnetic Resonance (TD-NMR) to measure body composition (fat mass, lean mass and free fluid) in conscious mice without the need for anaesthesia.

Dimensions of the analyser are 70 cm width x 110 cm depth. The external magnetic field induction is less than 5-gauss outside the system except two hemispherical volumes of 9 degrees radius at the opposite edges of the horizontal gantry. Measurements are radiation free (no special shielding is required), completely silent and provide a very accurate, fast, and easy to use method for determining fat and lean mass of mice without the need for anaesthesia.

4. Training requirements

Researchers are required to complete adequate training prior to independent use of the minispec. Refer to SOP 'MiniSpec_NMR_MMMPP_SOP_003_v1.0'. Training takes approximately 30 min and is usually scheduled to coincide with the first booking of a new user.

5. Experiment design considerations

- Researchers who have access to the animal facility may use the minispec independently once they have been trained
- When making a reservation please allow 4 min per mouse plus 15 min to export data and clean up at the conclusion
- Body composition fluctuates during the day. For consistency, if comparing body composition between multiple cohorts it's best to perform minispec analysis at similar times of day

6. Monitoring

During body composition analysis mice will be monitored for signs of discomfort and/or distress. Mice will be observed throughout the procedure and 15 minutes after their return to home cage.

7. References

<https://www.bruker.com/products/mr/td-nmr/minispec-lf-series.html>