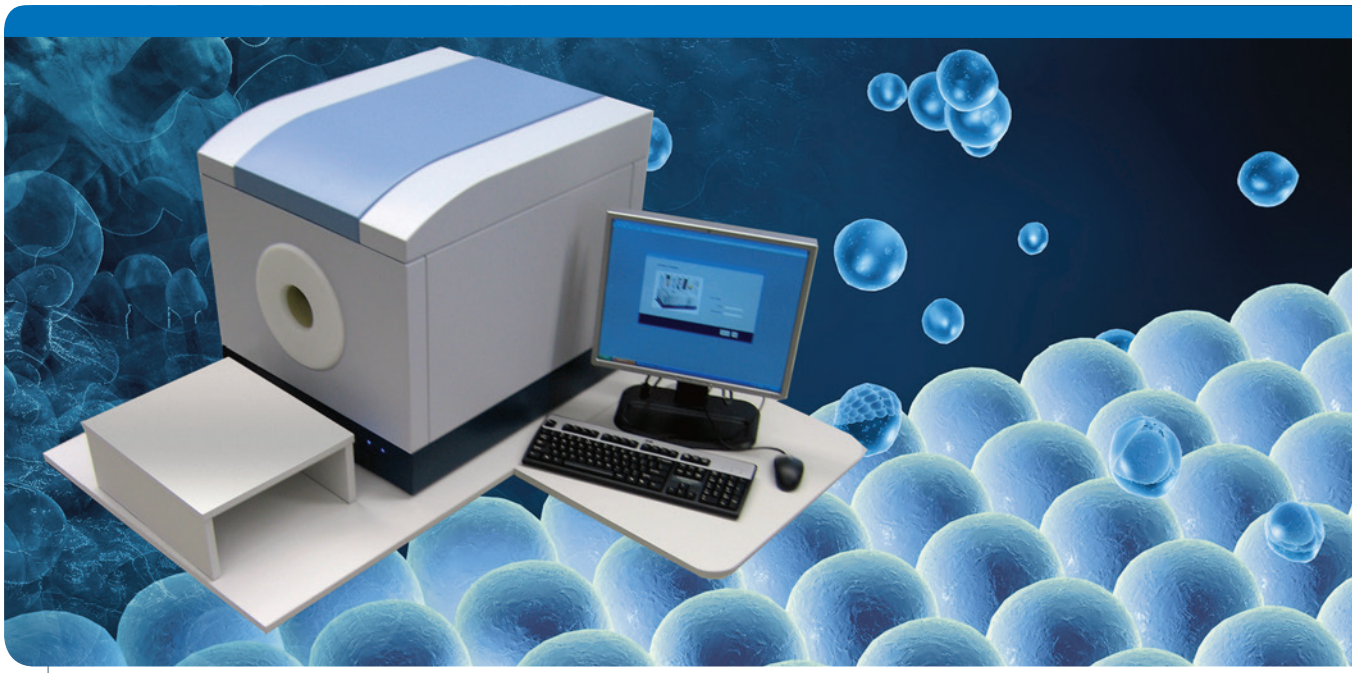


the minispec LF90$_{II}$

● Body Composition Analyzer

The minispec LF90 TD-NMR analyzer provides a precise method for the measurement of Lean Tissue, Fat, and Fluid in live mice, rats and small animals.

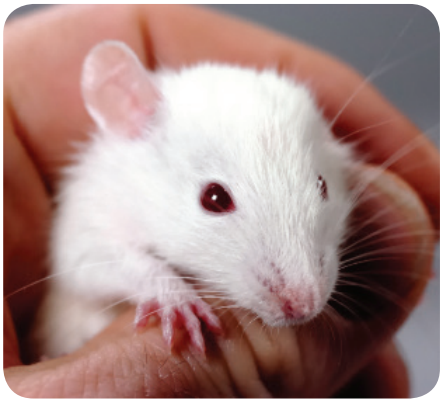
- Rapid analysis, <2 minute analysis; no sample preparation.
- Economical method: no consumables, retain expensive lab animals for entire study.
- Reduced animal stress: no need for anesthetics; animals are measured live "as-is".
- Allows more frequent testing because of negligible risk to animal health.
- Better accuracy and precision compared to DEXA (X-ray) method.

Introducing the LF90II

Bruker's minispec Lean/Fat Analyzer is a benchtop NMR analyzer for Whole Body Composition analysis of live mice, rats, and other small animals.

Since its first launch in the beginning of 2001, the minispec Mice Analyzer has quickly gained market acceptance as a powerful, non-destructive and non-invasive tool for characterizing, screening and phenotyping mouse models in research laboratories.

The new minispec LF90 offers a turn-key operation with an integrated workflow for the body composition analysis. The animal can be weighed right before inserted into the sampling compartment, the analysis takes less than 2 minutes, helping you achieve high throughput.



No sample preparation and no anesthetics; the animals are analyzed stress-free

The red light inside the new restrainers is perceived by the rodents as a dark cave and therefore a safe place

Why Time Domain NMR?

Nuclear Magnetic Resonance (NMR) methods are among the most useful non-destructive techniques of material analysis. Non-invasive examination of the body by means of NMR is extensive and has many useful applications, particularly with Magnetic Resonance Imaging (MRI) and Magnetic Resonance Spectroscopy (MRS).

TD-NMR uses similar NMR technology, providing analysis of fat tissue, lean tissue and free fluid by the same physical selection rules that give rise to contrast in MRI. Various RF pulse sequences are transmitted into the tissue to momentarily re-orient the nuclear magnetic spins of the hydrogen in water and fat. In response, RF signals are generated by the hydrogen in the tissue, and the signals are detected by the minispec. The amplitude and duration of these signals are related to properties of the material. Tissue contrast is high between fat and muscle based on relative relaxation times and can be further enhanced by application of certain RF pulse sequences.

The 6.2 MHz frequency of the minispec LF90 provides excellent body composition results of the animals tested, without any risk to the animal's health.

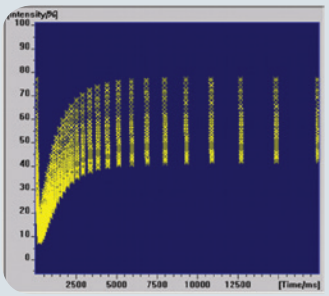
Stress-Free Measurements

The TD-NMR method requires no sample preparation. There is no need for any anesthetics, animals are simply inserted into the sampling compartment; the magnet, and stays there for less than 2 minutes. This non-invasive, non-destructive, stress-free measurement can be applied to the animal many times.

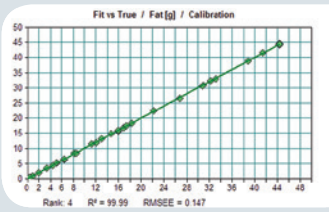
Compact and Mobile

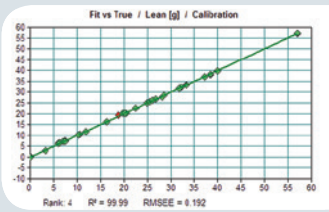
The complete system can be placed on a mobile cart and easily moved from one laboratory to another. The minispec LF90 magnet unit has a small footprint of only 80cm by 70cm (about 27" by 30"). The system, and its PC runs on regular 110 or 220V AC power, nothing else is required to start your measurements. The electronics and gradient unit is stored on the bottom shelf.

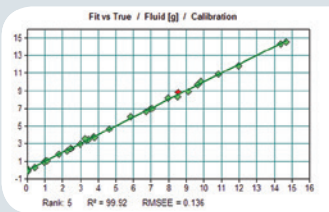
Measurements



Magnetization measurement defined by combined T_1 and T_2 relaxation processes







The minispec calibration lines are shown for fat tissue, lean tissue, and free fluids.

Bruker BioSpin

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www.bruker.com

Bruker BioSpin is ISO 9001 certified.

Magnetic safety measures apply to the operation of the minispec.