The MetCORE

i-CORE Metabolic Center

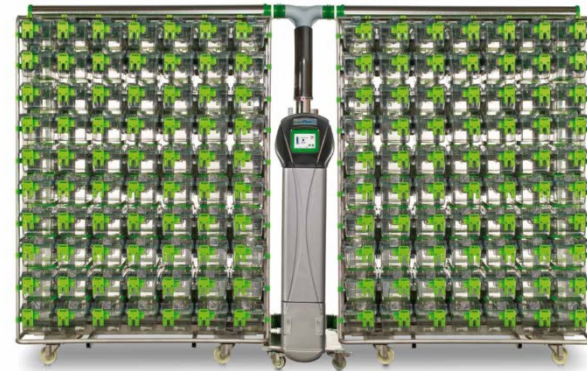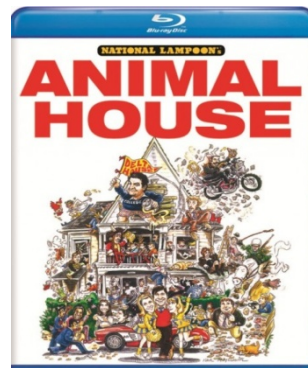Metabolic characterization from cell to whole animal

Physiology

Biochemistry

Contact information: Dr. Moran Rathaus
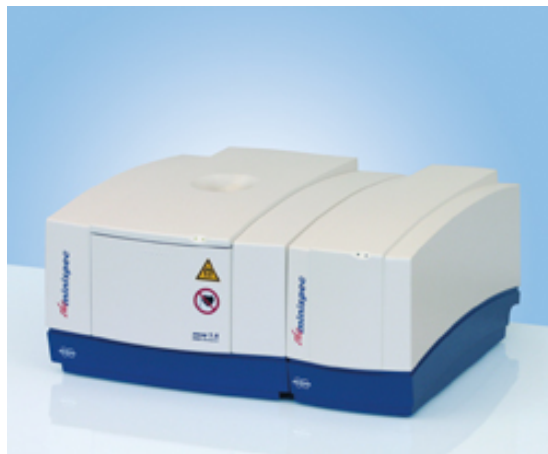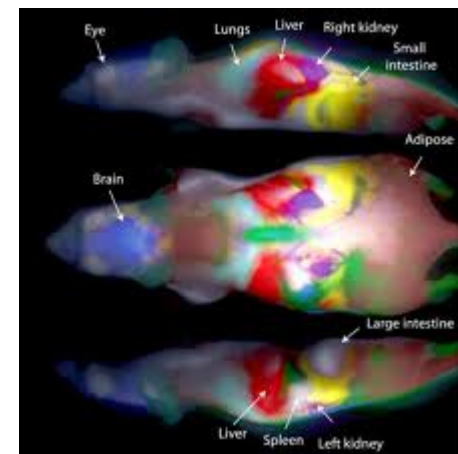E-mail: i.core.mc@gmail.com
Tel: 03-5317121

Physiology

Instruments

M2™ Compact High-Performance MRI System

LF50: Body Composition Analyzer of Mice
Bought from HC's ERC funding ~80,000 Euro

Maestro II In-Vivo Imaging System
Bought by BIU funding

M2™ Compact High-Performance MRI System (Aspect Imaging)

- **Field strength: 1 Tesla**

- **Applications:**

➢ **Monitor tumor size**

➢ **Development of contrast-imaging agents such as iron-nanoparticles**

➢ **Distribution of fat tissue and ability to monitor abdominal fat, subcutaneous fat and brown fat**

- **Cost: 1,500,000 NIS**

LF50: Body Composition Analyzer of Mice (Bruker)

- Provides a precise measurement of lean tissue and fat in live mice or specific organs.

- Adventages:

➢ Scanning time is very short ~1 min

➢ No radiation

➢ No need to anesthetize the animals
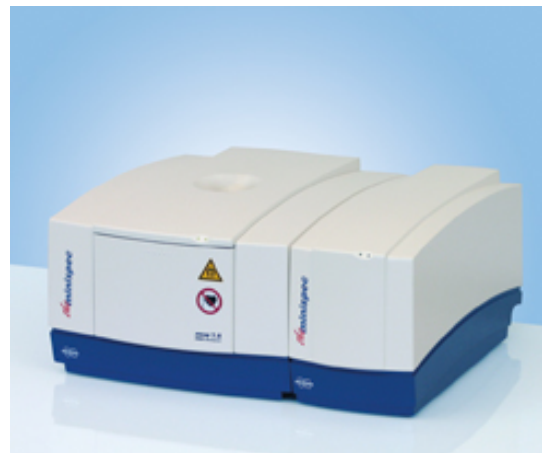
# CRi Maestro II ™ In-Vivo Imaging System

- **Imaging of fluorescent-labels in whole-live animals.**

- **Applications: Imaging fluorescence in whole small-animals (mice and rat) but also plants, organs, slides, plates, gels and tissue culture.**

TSE PhenoMaster

- An extensive monitoring system for physiological & behavioral phenotyping of lab animals
- Integration of respiratory metabolism (O_2 consumption/CO_2 production), food & liquid consumption, treadmill, activity and rearing measurements.
- Cost 700,00 NIS .
- Currently 4 existing cages. In the following 2 months, additional 4 cages will be added.
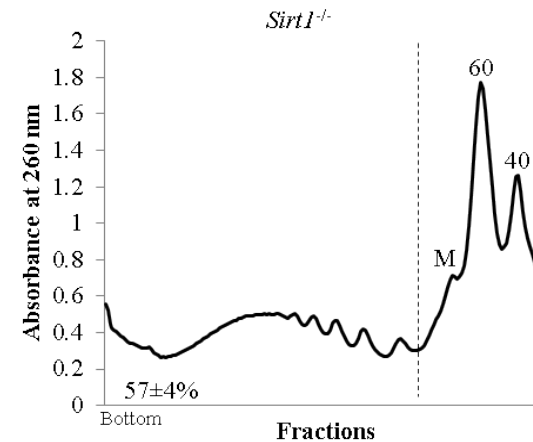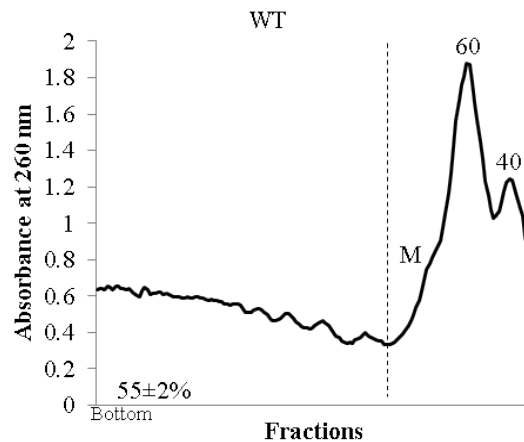- Non invasive blood pressure systems will arrive within the next month
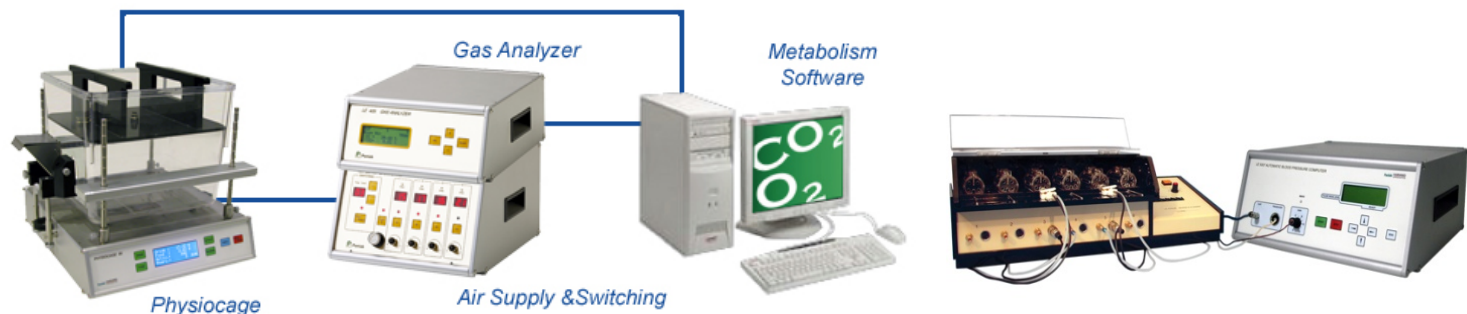
A semi-automated system
for the preparation and
analysis of sucrose gradients
(ISCO)

Polysomal profiles of WT and Sirt1$^{-/-}$ MEFs

Bio-Plex MAGPIX System

- **Robust system for magnetic bead–based immunoassays**
- **Combines 2 lasers, high-throughput fluidics, and real-time digital signal processing to distinguish up to 100 different color-coded bead sets, each representing a different assay.**
- **Variable assays using small amount of serum from human, mouse and rats**
- ➢ **cancer biomarker panel**
- ➢ **Variety of assay options: Th17, cytokines, cell signaling, diabetes, TGF-β , signal transduction,angiogenesis and isotyping.**
- **Cost 290,000 NIS.**
- **This apparatus is expected to arrive in the following 6 weeks.**

XF24 analyzer (Seahorse Bioscience)

- **Simultaneously measure mitochondrial oxygen consumption and cytoplasmic glycolysis**
- **Suitable for adherent cell lines, primary cells, tumor cells, suspension cells, pancreatic islets and isolated mitochondria.**
- **Cost 392,977 NIS.**
- **Researchers need to:**
- ➤ **Bring their cells/animals to the metabolic center**
- ➤ **Order their desired kit:**
1. XF Cell mito-stress test kit - provides a complete mitochondrial respiration profile
2. XF Glycolysis -stress test kit - assess the glycolytic function in cells
3. Palmitate-BSA FAO Reagent -enables the measurement of kinetic and cumulative levels of palmitate oxidation
- **First experiments are expected to start within two weeks.**

Behavioral center (Dr. Eitan Okun)

- Spatial learning and memory: Morris water maze, Barnes maze and Radial arm water maze

- Object recognition memory

- Anxiety/exploratory responses: Zero maze, and the open field arena

- Fear learning and memory using the fear conditioning apparatus.

  The rooms are/will be equipped with video recording instruments coupled with unbiased computerized analysis system.

Additional general information

- Permanent location: SPF animal facility at BIU (estimated to be open in 4-6 months)
- Manpower : Dr. Moran Rathaus (50% technician)
- Cost: Reagents + working hours (above 50%)+ animal facility
- Health reports for animals that are needed for further investigation are required
- Website for online reservations is under construction

- Contact information:
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Prof. Haim Cohen
Prof. Shulamit Michaeli

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