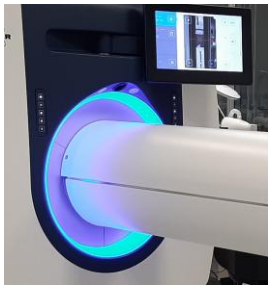
IBEC

Institute for Bioengineering of Catalonia

Core Facilities

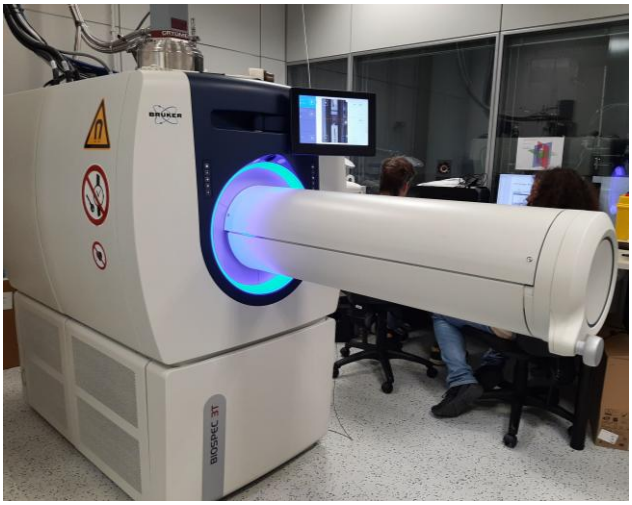
BioImaging



Manufacturer
Bruker

Model
BioSpec 3T

PRECLINICAL MRI SCANNER



Magnetic Resonance Imaging (MRI) is a non-invasive technique that combines a strong magnetic field with radiofrequency waves to visualize soft tissues—such as the brain, spinal cord, ligaments, and more—with exceptional penetration depth. Animal bodies are largely composed of hydrogen atoms ('protons'), which normally spin randomly. Under a strong magnetic field, these protons align, and when exposed to radiofrequency pulses, they emit signals that are processed to generate detailed MR images."

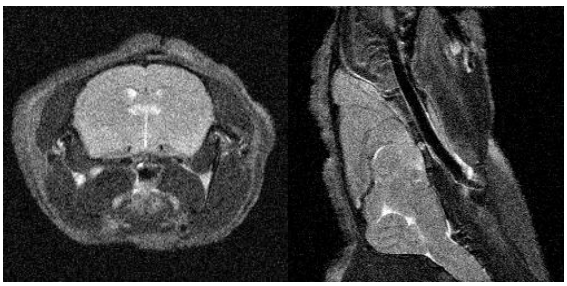
Our preclinical MRI scanner offers advanced imaging services for:

- basic research,
- disease modeling,
- treatment studies.

This **non-invasive *in vivo* technique** delivers high-resolution structural and functional information on small animals and rodents, combining exceptional spatial and temporal precision.

Applications (over 100 validated, ready-to-use *in vivo* protocols for mice and rats):

- monitoring blood flow, diffusion, perfusion, and functional MRI in the brain;
- assessing myocardial velocity and volume;
- analyzing lung parenchyma and capacity;
- tracking tumor size, growth, and angiogenesis, among others



Axial (left) and sagittal (right) T2-weighted (TurboRARE) images of the brain.

Image provided by Adriana González

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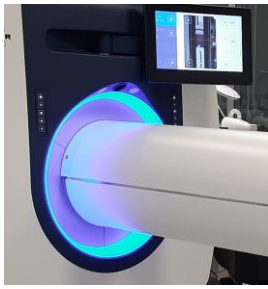

PRECLINICAL MRI SCANNER

Technical specifications:

- A compact small animal anaesthesia machine with Isoflurane
- A monitoring system to control body temperature and respiratory rhythm.
- A 1H/13C volume coil for mouse (40 mm inner diameter).
- A 1H/13C surface coil.
- A 1H volume coil for rat (80 mm inner diameter).
- A ^{1}H brain surface coil.

Equipment financed by:

Financiado por la Unión Europea NextGenerationEU

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

Plan de Recuperación, Transformación y Resiliencia

Next Generation Catalunya

Generalitat de Catalunya Departament de Recerca i Universitats