

SIEMENS



Jennifer Satterthwaite
Core Facility Manager

Combining biomedical engineering and medical expertise, the experimental imaging core facility offers high-tech medical imaging equipment and services dedicated entirely to animal and human research.

We also use ultra-modern clinical research facilities and those of the animal core facility (surgery and shelter for animals).

SERVICES

MAGNETIC RESONANCE IMAGING (MRI)

- 3 Tesla system with 70 cm open bore design (the largest on the market)
- MRI elastography (Resoundant device)
- Automatic injector for examinations with contrast injection
- MRI sequence development and optimization services

ANGIOGRAPHY

- X-Ray
- Fluoroscopy
- Angiography (cerebral, abdominal and peripheral)
- Subtraction imaging
- C-arm CT
- Image-guided intervention in animals

MAXILLOFACIAL IMAGING (CONE-BEAM CT)

- Bone structure and erosion
- Oral and maxillofacial
- ORL problems
- Cranial traumatism

FIBROSCAN

- Hepatic fibrosis/steatosis measurement through liver stiffness/elasticity assessment

QUANTITATIVE ULTRASOUND IMAGING

- Terason portable device: long-duration radio frequency ultrasounds
- Verasonics system: ultrasound imaging research and development
- Ultrasound image segmentation
- Elastography
- Tissue imaging by homodyned-K (HKD), Nakagami or ultrasound textural analysis
- Ultrasound backscatter and attenuation imaging

EXPERIMENTAL IMAGING

HIGHLIGHTS

Our team has access to:



a hybrid room, **the only one of its kind in Quebec**, which includes both angiography and magnetic resonance imaging (MRI), with a mobile table allowing patients to move from one room to the next



multi-purpose imaging rooms for animals and humans

Our MRI machine comes equipped with a variety of antennas for brain, abdominal, musculoskeletal, vascular and cardiac imaging.

RESEARCH IN ACTION

The hybrid room, combining angiography and MRI, played a key role in a ground-breaking project focusing on in vivo, real-time navigation of magnetic beads guided by the MRI magnetic field. The 3D visualization capabilities of the Artis Q system's Cone-Beam CT enabled us to carry out a detailed analysis of the vascularization of the animal being studied. This approach could facilitate the treatment of liver tumours using magnetic microrobots guided in an MRI scanner. This research was published in the journal *Science Robotics*.

