MICA-BIL

MOLECULAR IMAGING CENTER ANTWERP – BIO-IMAGING LAB

University of Antwerp

▶ Preclinical imaging is one of the most important pillars in (molecular) biomedical research.

MICA-BIL combines infrastructure and related expertise for multimodal preclinical imaging. This enables the visualization of anatomy and biological processes in living animals for research purposes. Core Manager Dr. Elisabeth Jonckers explains the potential applications:

Core facility UAntwerp
Active in Health & Environment (Biology)

"Preclinical imaging is one of the most important pillars in (molecular) biomedical research. The combination of various translational in vivo imaging techniques makes it possible to visualize, characterize and quantify biomedical processes. By combining techniques such as MRI, PET and CT, better data acquisition, analysis and interpretation can be achieved.

These non-invasive techniques play a role in both fundamental and translational biomedical and pharmaceutical research. In addition to brain imaging (neuro-imaging), there are also numerous applications in oncology and biology.

Preclinical imaging helps to provide insight into the severity and progression of certain diseases and to determine their mechanisms.

But also, to identify and validate new imaging biomarkers, and thus evaluate the effectiveness of new therapies. The in vivo nature of the imaging experiments allows longitudinal studies to be conducted, with multiple follow-up moments in the same test animal.

Our unique infrastructure attracts companies for major research projects. We also help companies validate their own imaging outcomes and train
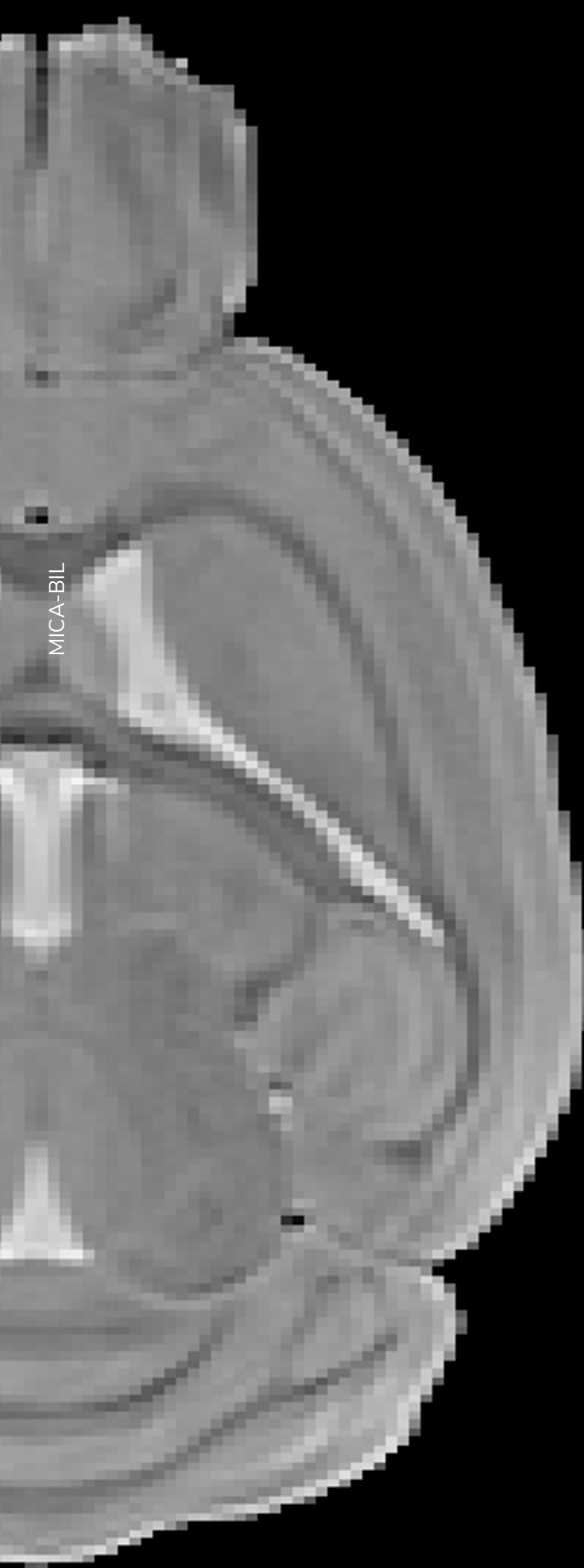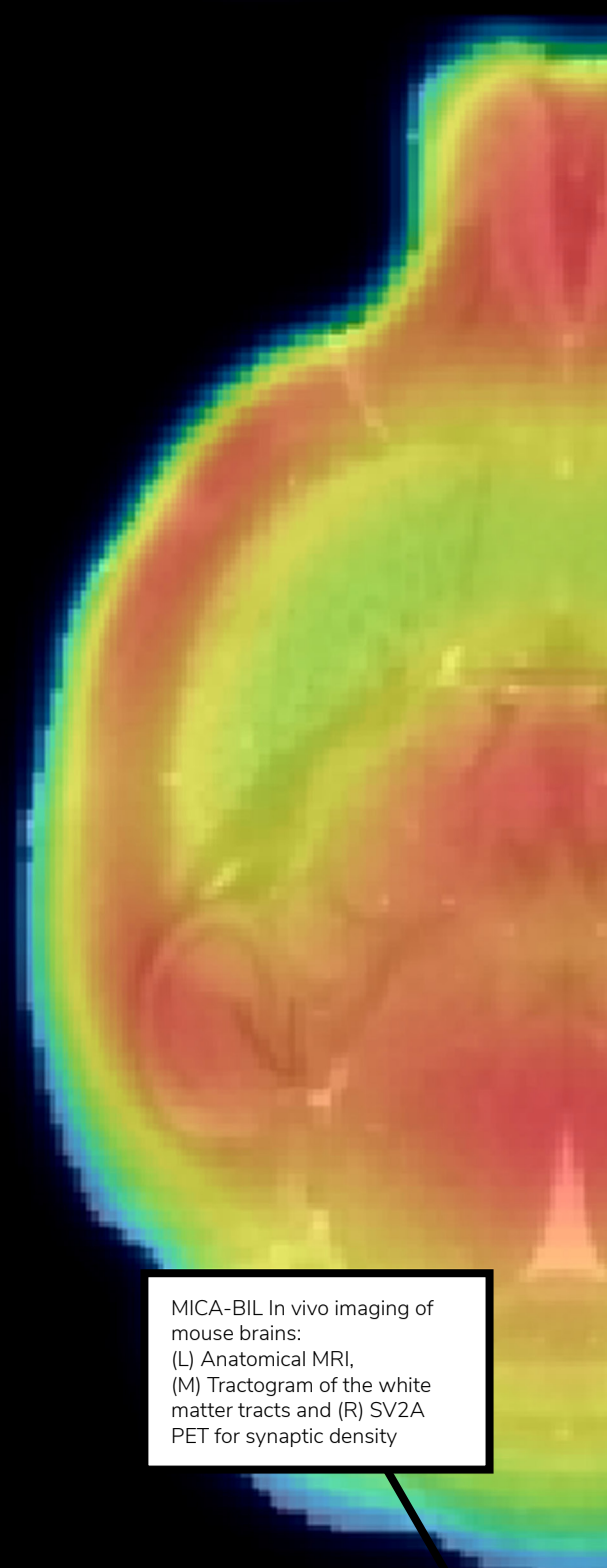
them in the field of image data acquisition and image processing."

Would you like to collaborate with MICA-BIL for preclinical imaging? Please contact Dr. Elisabeth Jonckers.

MICA-BIL

MICA-BIL In vivo imaging of mouse brains:
(L) Anatomical MRI,
(M) Tractogram of the white matter tracts and (R) SV2A PET for synaptic density

Research groups and expertise

MICA-BIL

MICA-BIL was created through the collaboration of the *Molecular Imaging Center Antwerp* and the *Bio-Imaging Lab*. Together they have validated an extensive portfolio of state-of-the-art imaging biomarkers in a wide range of neurological disorders including Huntington's, Alzheimer's and Parkinson's disease but also Epilepsy, spinal cord injury, etc.

Molecular Imaging Center Antwerp (MICA)

The Molecular Imaging Center Antwerp (MICA) is a joint effort between UAntwerp and the Antwerp University Hospital. The research group consists of a team for the development and validation of molecular tracers from preclinical to clinical evaluation. There is also a preclinical nuclear imaging laboratory and a clinical department. As a result, the research group plays a leading role in bench-to-bedside research within molecular diagnostics. The focus is on neuroscience on the one hand and oncology on the other.

Bio-Imaging Lab

The core R&D activity of the Bio-Imaging Lab is focused on in vivo Magnetic Resonance Imaging (MRI) to study brain function and structure in small laboratory animals. On the one hand during normal development and aging and on the other hand, during pathology. The research is focused on neurodegeneration and neuroplasticity. This research is supported by continuous development and implementation of new MRI techniques.

µNEURO

MICA-BIL is part of the Centre of Excellence µNEURO at the University of Antwerp, which is devoted to conducting translational neuropathological research and understanding pathogenic mechanisms in neurological developmental and neurodegenerative disorders on a cell-to-organism wide scale. µNEURO combines expertise in basic, preclinical and clinical research into neurological diseases and quantitative multimodal imaging with analysis experts.

IMARK

MICA-BIL is part of the IOF consortium IMARK, specifically focused on the research and development of imaging biomarkers for biomedical processes.

▶ **For over 10 years Janssen Neuroscience has engaged in collaborative research with the Molecular Imaging Center of Antwerp (MICA) and the BioImaging Lab. Scientific projects included the use of preclinical PET to test new PET imaging tracers for psychiatric disorders, use of preclinical PET to detect effects of new treatments for Alzheimer's disease, and evaluating advanced diffusion magnetic resonance imaging sequences for monitoring neuroinflammation, also to support treatment for Alzheimer's disease. The science was state of the art and the projects supported innovation in multimodal imaging analysis by partners in the Flemish biotech community reflected by a number of high quality publications. The teams and teamwork was excellent.**

Quote from   Janssen Research and Development

MICA-BIL

MICA-BIL is ...

In-vivo imaging · Small animal imaging · Multimodal imaging · Magnetic resonance imaging (MRI) · Acquisition and processing · Neuroscience · Oncology · Neuro imaging · Computed tomography (CT) · Positron emission tomography (PET) · Single photon emission tomography (SPECT)

Contact MICA-BIL

Dr. Elisabeth Jonckers
Campus Drie Eiken
+32 3 265 27 80
elisabeth.jonckers@uantwerpen.be
www.uantwerpen.be/en/research-facilities/mica-bil/

Collaboration is possible through...

Co-development / joint research · Contract research · PhDs / postdocs · Use of equipment and facilities · Master theses · Customized training · Service contracts · Internships

Unique features of our equipment

The MICA-BIL array of instruments for preclinical imaging consists of:

· 4 high-field MRI scanners with specific RF coils
· 2 microPET/CT systems
· 1 microSPECT/PET/CT

The equipment allows you to make virtual slices through a living laboratory animal and thus quantitatively monitor various anatomical, morphological, physiological and molecular processes over time in the same animal. In addition to the in vivo multimodal imaging systems, access/use of an in vivo Bioluminescence/Fluorescence camera, laboratory animal monitoring and operations, and laboratory animal housing under radiation protection are also possible.