MICA – BIL CORE FACILITY

Molecular Imaging Center Antwerp & Bio-Imaging Lab

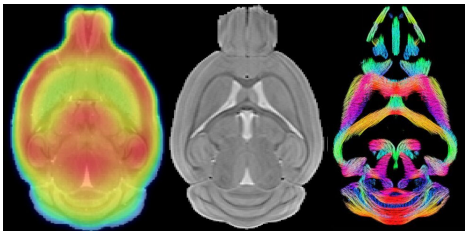
Preclinical imaging expertise and facilities

University of Antwerp
MICA-BIL | core facility

Elisabeth.jonckers@UAntwerpen.be

Our biomedical imaging activities at University of Antwerp

- Focus on neuroscience and oncology driven by **state-of-the-art imaging infrastructure** and own technical innovations.
- Cover several ***in vivo* imaging modalities** including:
  - PET imaging
  - SPECT imaging
  - Multiparametric MRI
  - *In vitro* autoradiography
- **Span the whole spectrum** from probe development over preclinical imaging to clinical imaging.



Molecular Imaging Center Antwerp (MICA) University of Antwerp
Bio-Imaging Lab University of Antwerp

Nuclear imaging

Magnetic resonance imaging

Clinical Imaging
Nuclear medicine UZA: S. Stroobants

Preclinical Imaging (MICA-BIL)
MICA: S. Staelens
BIL: M. Verhoye & D. Bertoglio

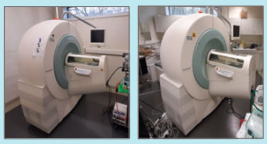
Radioligand Development
CREANT: F. Elvas

UZA: Antwerp University Hospital
MICA: Molecular Imaging Center Antwerp
BIL: Bio-Imaging Lab
CREANT: Center for Radiopharmaceuticals Antwerp

State-of-the-art infrastructure

2 x Bruker 7T MRI + 4.7T MRI

Bruker 9.4T MRI + cryocoil



2 x Inveon Siemens µPET/CT
Mediso Nanoscan µPET/CT

VECTor SPECT/CT

On-site cyclotron
Radiopharmacy unit
UZA

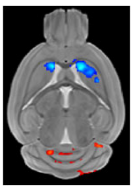
We provide a battery of **translational Imaging biomarkers** to evaluate:

- Development and progression of **neurological diseases and cancer**
- Identification of **prognostic and predictive** imaging biomarkers
- Longitudinal assessment of the efficacy of **treatment response**

Neuroscience	Identification of prognostic biomarkers, treatment response in neurological disorders, neurodegeneration, neuroinflammation, neuroplasticity, & neuromodulation
Oncology	ImmunoPET, protease imaging, in vivo pretargeted imaging, response evaluation to anti-cancer therapies
Methodology	Computational modeling, pharmacokinetic modeling, development of new imaging sequences and processing methods, advanced connectivity measures, image reconstruction, awake animal imaging

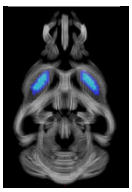
Neurological diseases – Multi-modal assessment

Volumetric assessment



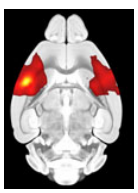
ROI/TBM

Microstructural analyses



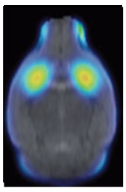
DTI/DKI/FBA

Functional connectivity



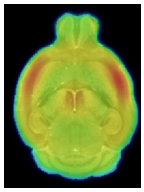
rs-fMRI

Enzymatic activity (PDE10a)



[^{18}F]MNI-659

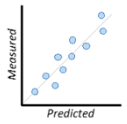
Proteinopathy (mHTT)

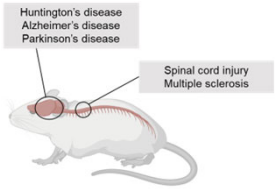


[^{18}F]CHDI-650

- **Optimization of scanning**
  => single scan yielding multiple outcomes
- **Optimization of processing pipelines**
  => registration of all outcomes in same template space
- **Multi-modal integration** of the different technique outcomes
  => temporal profile of changes
  => causal relationship between changes
  => strengthening the sensitivity of an **integrated prognostic biomarker**

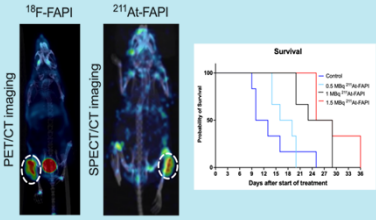
Computational modelling





Oncology

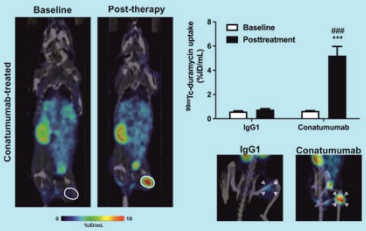
Radiotheranostics – combination of molecular imaging with targeted radioligand therapy



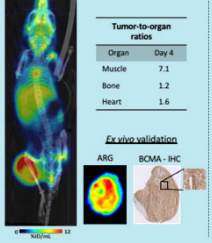
Targeting of biomarkers in the cancer cells (CD70) and in the tumor microenvironment (FAP);

- Discovery of novel potent radioligands
- Preclinical evaluation of PK and therapeutic efficacy of radioligands
- Clinical translation of novel radioligands

Apoptosis imaging



Immuno PET imaging



University of Antwerp

MORE INFORMATION
https://www.uantwerpen.be/en/research-facilities/mica-bil/