



The Small Animal Imaging Facility has an extensive program of imaging preclinical models of brain tumors, from patient-derived xenograft models and human cell lines to syngeneic models, including intracranial injections and systemic metastasis. Due to the need for high soft tissue contrast, MRI is heavily utilized for tracking disease progression. Molecular imaging with positron emission tomography (PET) and optical imaging also provides an avenue to quantify tissue-level functional and metabolic characteristics.

PET imaging probes that have been developed and are available at UAB for neuro-oncology imaging include [¹⁸F]-FET (system L amino acid), [¹⁸F]-FMISO (hypoxia), and [¹⁸F]-MeFAMP (System A amino acid), and [¹⁸F]-DPA714 (TSPO). The size of the preclinical brain tumor model and the highest spatial resolution capabilities of the molecular imaging approach are key considerations for including molecular imaging in preclinical neuro-oncology models.

In 2023, the SARRP (Small Animal Radiation Research Platform) was onboard to allow for image-guided radiation for radiotherapy and the development of animal models. This has been utilized to treat brain tumors (with minimal effect on normal surrounding brain tissue) and the development of a radiation-necrosis preclinical model.

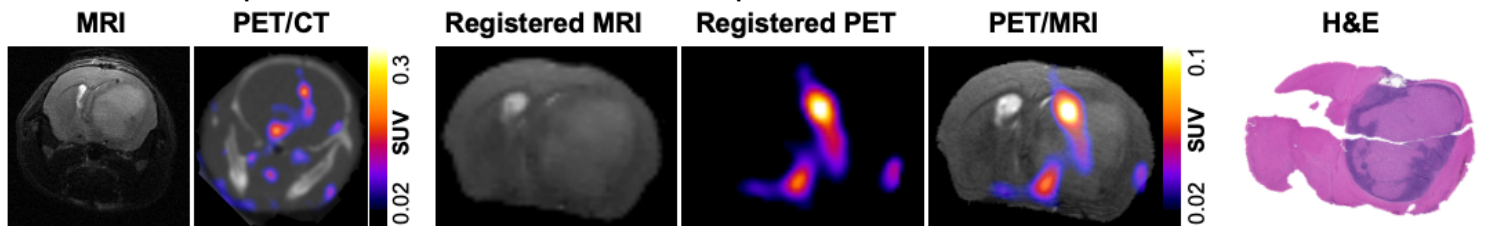


Figure 1) In vivo T_2 -weighted MRI (9.4T Bruker BioSpin system) and PET/CT imaging (GNEXT system) of a [⁶⁴Cu]Cu-MMP14 peptide (binds to matrix metalloproteinase 14) in an athymic nude mouse bearing a human GBM orthotopic tumor. H&E staining of a formalin-fixed brain section from this mouse confirmed the extent of the GBM xenograft. Images courtesy of Dr. Benjamin Kasten, Carlos Gallegos, and Dr. Jason Warram.

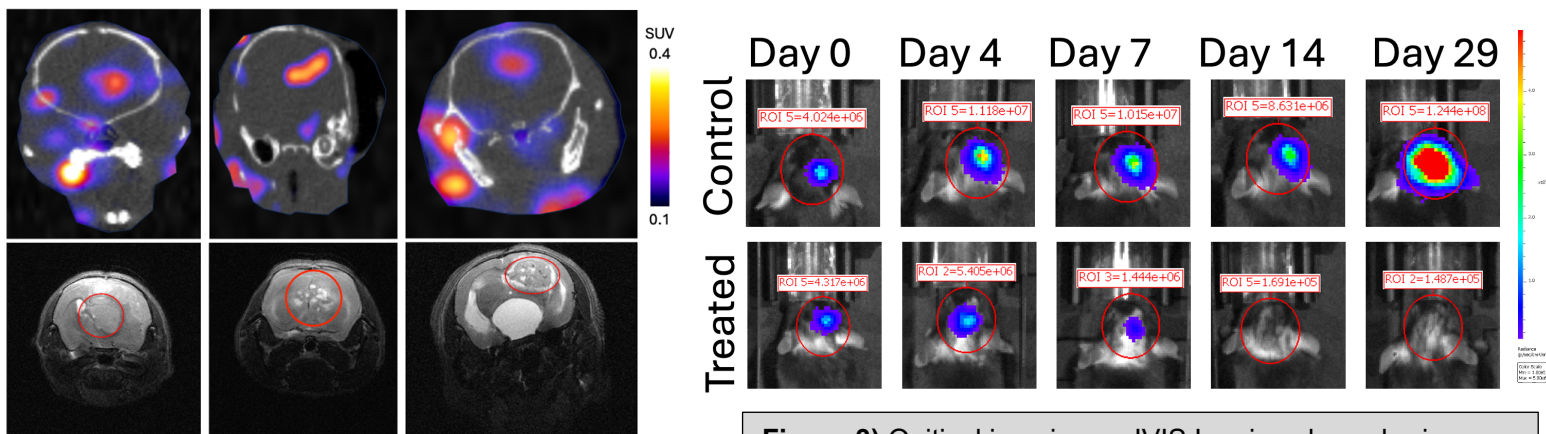


Figure 2) Assessing blood-brain barrier clearance of [⁴⁷Sc]-NOTA-Trastuzumab in HER2+ intracranial tumors. Intracranial HER2+ tumors were established and imaged with SPECT imaging, demonstrating clear uptake of radiotracer in the HER2+ brain lesion.

Figure 3) Optical imaging on IVIS Lumina shows brain tumors



FEATURED IMAGE OF THE QUARTER

CLINICAL CANCER RESEARCH | PRECISION MEDICINE AND IMAGING

^{18}F -FMISO PET Imaging Identifies Hypoxia and Immunosuppressive Tumor Microenvironments and Guides Targeted Evofosfamide Therapy in Tumors Refractory to PD-1 and CTLA-4 Inhibition



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Dr. Benjamin Larimer, Associate Professor in the Division of Advanced Medical Imaging Research in the Department of Radiology published *[^{18}F]FMISO-PET imaging Identifies Hypoxia and Immunosuppressive Tumor Microenvironments and Guides Targeted Evofosfamide Therapy in Tumors Refractory to PD-1 and CTLA-4 Inhibition*. Dr. Larimer and his team are a valued users of the SAIF.

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FEATURE SPOTLIGHT



The SAIF is excited to announce the onboarding of a new nanoScan® PET system from Mediso. This state-of-the-art PET/CT will provide our users with additional scanner availability.

We are excited about this new addition to our facility!



USEFUL LINKS

➔ UAB SAIF

Homepage for the Small Animal Imaging Facility core.

➔ SAIF FAQ's

The Small Animal Imaging Facility's Frequently Asked Questions

➔ TRAINING FORMS

Download training material for submission prior to scheduling imaging.

➔ PRE-CLINICAL IMAGING CALENDAR

Check for any available time slots for imaging modalities.

➔ DEPARTMENT OF RADIOLOGY

Homepage for UAB's Department of Radiology.

➔ O'NEAL COMPREHENSIVE CANCER CENTER

Homepage for O'Neal Comprehensive Cancer Center at UAB.

➔ O'BRIEN CENTER

Homepage for O'Brien Center for Acute Kidney Injury Research.

➔ UAB CYCLOTRON FACILITY

Homepage for UAB's Cyclotron Facility.



DID YOU KNOW?

In 2024, The Small Animal Imaging Facility assisted **58** PIs across **35** departments and supported over **63** million in NIH grant dollars.

CONTACT INFO



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IMAGING FACILITIES

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WTI 630D

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SAIF MODALITY PRICING

* Labor charges are \$45 per hour (for each personnel), when assisted during imaging.

Prices effective 01/01/2022.

* Training is available on some modalities, free of charge.

* Accounts will be auto billed after 7 days of no response to invoices.

MODALITY	COST	INSTRUMENT
Bioluminescence	\$60/hour, No substrate \$80/hour, Core substrate	IVIS Lumina III
Fluorescence	\$60/hour	Custom Leica Microscope with Nuance spectral camera
		IVIS Lumina III
Ultrasound	\$75/hour	Vevo 660
MRI	\$200/hour	Bruker 9.4T
SPECT/CT	\$200/hour + dosing	U-SPECT ⁶ - μ CT
PET/CT	\$200/hour + dosing	Sofie GNEXT PET/CT
Specialty Fluorescent Imaging	\$100/hour	Li-Cor Pearl Impulse
		Luna/SPY Systems
		FMT 4000
Flow Cytometry	\$35/hour, non-assisted \$50/hour, assisted	Attune Flow Cytometer
Staff Image Analysis/Assistance	\$45/hour	

*NON-CANCELLATION POLICY:

If user is not present at scheduled appointment time without prior notification of cancellation, user will be charged an **hourly-use fee** for that instrument.

IMAGE SUBMISSIONS

Submit images that you would like featured in the newsletter to jordynlawrence@uabmc.edu. Please include PI's name, modality, brief experiment summary, and species.

PUBLICATION REFERENCE

Please acknowledge support of SAIF services in grants and publications by citing the **O'Neal Cancer Center Grant P30CA013148**.

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For data obtained with the MRI, please cite **S10 instrumentation grant S10OD028498-01**.

For data obtained with the SARRP, please cite **S10 instrumentation grant S10OD034408-01**.

For data obtained with the U-SPECT, please cite **S10 instrumentation grant S10 OD030465-01**.