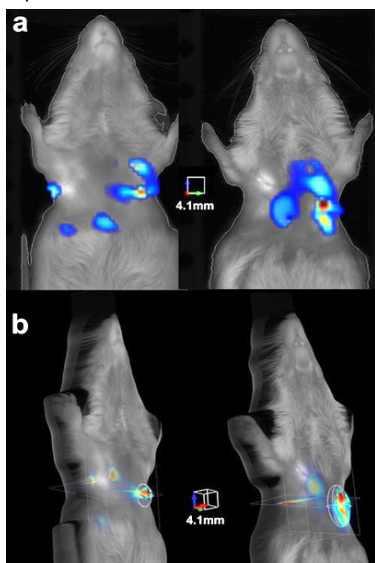


NEWS & UPDATES

NEW INSTRUMENT

FMT 4000 BY PERKIN ELMER

SAIF is happy to introduce an upcoming addition to our family of imaging modalities, the **FMT 4000 by Perkin Elmer**. Capable of producing visual and quantitative data using fluorescent molecular tomography for better performance in *in vivo* imaging, the FMT 4000 can detect across a fluorescent spectrum of four channels that includes **635 nm, 680 nm, 750 nm, and 790 nm**. A number of fluorophores (such as conjugates of Alexa Fluor, Cy 5.5 and Cy 7) are already programmed into the instrument for convenient application. With a user-friendly interface, the FMT 4000 proves to be a powerful system capable of providing detailed and quantifiable data for its users which can help with potential drug efficacy testing and tumor analysis.



In vivo imaging of mice injected with amino compound labeled with IRDye800cw in FMT after myocardial infarction. Reprinted from "Targeting Endothelin Receptors in Murine Model of Myocardial Infarction" by Kimm et al.

How it Works

Perkin Elmer's FMT 4000 is a single-animal imager with four 80 mW lasers seated beneath an imaging stage with a heated compartment. The lasers are dynamically operated and move over time to assess the entire animal and deep-tissue areas of fluorescence. Near-infrared light generated by the lasers goes through the subject and exits on the opposite side through a filter wheel that allows only signal that meets user-specified wavelength settings to be detected by the CCD camera above. Imaging sessions are

quick and can be completed within 5 minutes per animal. Consistent and effective imaging results are ensured through careful immobilization of subject inside an imaging cassette which comes in two sizes for mouse and rat imaging. The imaging compartment can support an adult rat up to 450 grams.

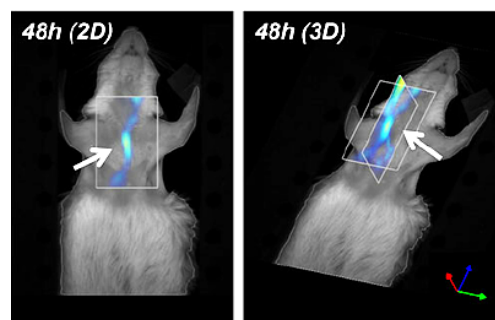
Relevant Data Production

Imaging artifacts are reduced with the help of integrated software that takes any absorption and adequately compares it with actual fluorescence to automatically correct images for distortion and tissue autofluorescence. Fluorescent signals can be quantified with user-selected regions of interest (ROI) to assist with post-imaging analysis and data compilation. Data can also be presented as a rotating video for dynamic presentations.

The FMT 4000 is optimized to produce data that explores the various benefits of multimodality imaging.

Tomographic data from the FMT 4000 can be co-registered alongside images taken from

anatomical (MRI, CT) and functional (PET, SPECT) modalities to address biological inquiries relative to oncological, pathological, and pharmacological studies.



In vivo imaging in FMT of the carotid artery in mice injected with RGD-HFn-Cy5.5. Reprinted from "Hybrid uCT-FMT Imaging and Image Analysis" by Gremse et al.

Training for users for the FMT 4000 will be available in 2020.



FEATURED IMAGE OF THE QUARTER



TE/TR 25/2000



TE/TR 78/3000

ANATOMICAL TEST IMAGING ON MOUSE PROSTATE

Images of prostate in a mouse obtained using **Bruker 9.4T MRI** with moderate to high levels of T2-weighting (high TE). Images pictured were acquired with pre-established parameters of TE/TR 25/2000 and TE/TR 78/3000 using 0.1mm in-plane resolution. Used to control image contrast, TR and TE are defined as basic pulse sequence parameters for MRI and stand for "repetition time" and "echo time" respectively. Imaging procedure used was based on previously written research paper "Visualizing the Prostate Gland by MR Imaging in Young and Old Mice" by Ravoori et. al in PLOS.

Image credit:

Dr. John Totenhagen, MRI Researcher (SAIF)



FEATURED INSTRUMENT



FMT 4000 BY PERKIN ELMER

The FMT 4000 with Fluorescent Molecular Tomography technology is a non-invasive, *in vivo* imager that can generate deep-tissue quantitative data for pre-clinical research applications. It is capable of imaging one animal at a time with dedicated imaging chambers for mice and rats. With quick and efficient imaging times, the FMT 4000 provides useful and versatile data that can be used to measure, monitor, and compare multiple biomarkers, biological functions, and responses relative to a number of research topics. Additionally, this can help provide better insight into experimental design and decision making for current or future studies.

USEFUL LINKS

➤ **Pre-Clinical Imaging Calendar**

Check for any available time slots for imaging modalities.

➤ **Training Forms**

Download training material for submission prior to scheduling imaging.

➤ **Perkin Elmer Resources**

Educational material related to the IVIS Lumina III.

➤ **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?

Both rats and mice can be imaged on the IVIS Lumina III.

The IVIS Lumina III is a useful instrument for monitoring both *in vivo* (rats and mice) and *in vitro* processes and responses using bioluminescent reporters and/or fluorescent labeled compounds. For bioluminescent imaging, luciferin substrate is premade and provided for SAIF users in both facilities located in Volker Hall and the Wallace Tumor Institute buildings. The substrate can be administered intraperitoneally for both rats and mice, however, each mouse should be injected with one syringe of substrate (with concentration of 2.5mg/100 uL) while each rat will need to be injected with THREE syringes of substrate prior to imaging.

CONTACT US

ULTRASOUND

MRI

NUCLEAR

OPTICAL

MRI

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LOCATIONS

Volker Hall Laboratory

1670 University Blvd.

Rm. G082G, 975-6465

WTI Imaging Suite

WTI 630D

MRI 9.4T Imaging Suite

LHL B15, 934-0265

Volker Hall Imaging Suite

VH B21A, 975-6466

SAIF MODALITY PRICING



Labor charges are **\$40 per hour** (for each personnel), when assisted during imaging.

Prices effective 11/1/2018.



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

MODALITY	COST*	INSTRUMENT
Bioluminescence	\$7/mouse OR \$55/hour (reagent dependent)	IVIS Lumina III
Fluorescence	\$55/hour	IVIS Lumina III
		Custom Leica microscope with Nuance CRI spectral camera
Ultrasound	\$75/hour	Vevo 660
MRI	\$125/hour	Bruker 9.4T
SPECT/CT	\$100/hour + dosing	X-SPECT system
PET/CT	\$200/hour + dosing	Sofie GNEXT PET/CT
Gamma Camera	\$20/hour + dosing	Picker Camera with Numa computer
Specialty Fluorescent Imaging	\$100/hour	Li-Cor Pearl Impulse
		Luna/SPY Systems
		FMT 4000
Staff Image Analysis	\$40/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 erikanmc@uab.edu. Please include PI's name, modality, brief experiment summary, and species.

Publication Reference

If you have received services through this core for grants and publications, please acknowledge support by citing UAB Comprehensive Cancer Center's Preclinical Imaging Shared Facility Grant P30CA013148.

For published data obtained with the IVIS Lumina III systems, please cite S10 instrumentation grant 1S10OD021697.