



SAIF

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SMALL ANIMAL IMAGING FACILITY

SARRP FOR IMAGE-GUIDED IRRADIATION



The SAIF is happy to announce the newest addition to our research technologies – the Small Animal Radiation Research Platform (SARRP) (Figure 1). This system, located in Volker Hall, is specifically designed to mimic clinical human radiation therapy procedures and treatment plans on a smaller scale, allowing researchers to precisely target and treat their animal models with radiotherapy.

The SARRP is equipped with cone-beam CT (CBCT) imaging capabilities allowing accurate image-guided targeting of the radiation beam to specific areas of interest within the animal's body. Based on the imaging data and experimental model, an individual treatment plan can be created using the MuriPlan software (Figure 2). Optimal dosing can be determined, providing relevant and translatable dosimetry data.

The SARRP addresses several needs related to radiation delivery and comes equipped with multiple collimators of various sizes and shapes, including a motorized variable collimator (MVC), giving the end user the ability to customize the collimator size (Figure 3). Simple beam delivery can be done in a sequence to allow for multiple mice to be treated with a single workflow. In addition to open beam treatment, dynamic arc beam therapy is available to maximize dose within the target area. The robotic stage and precise gantry movement enables movement of the subject and beam simultaneously to deliver seamless treatment. The SARRP was purchased through a NIH S10 grant (1S10OD030465-01).



Figure 3. Several fixed size collimators are available in addition to the MVC, which allows customizable collimation.

Notable specifications of the SARRP:

- Isocenter indicating lasers
- Registration with images acquired on other modalities
- Heated mouse beds
- Multi-mouse beds for high throughput
- 225 kV Dual focus X-ray tube



Figure 1. The SARRP system features a laser beam guide, LED cabinet lights, and live webcam views during imaging.

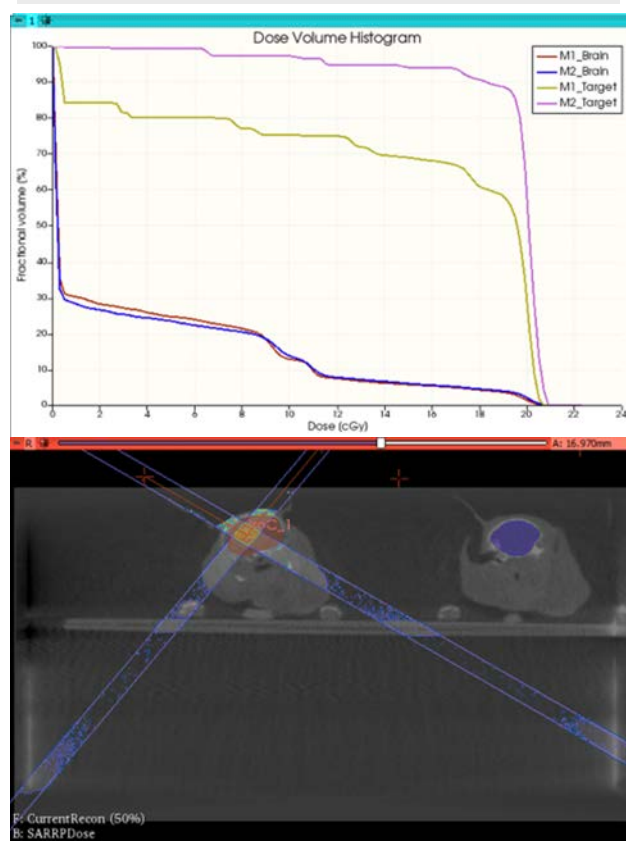
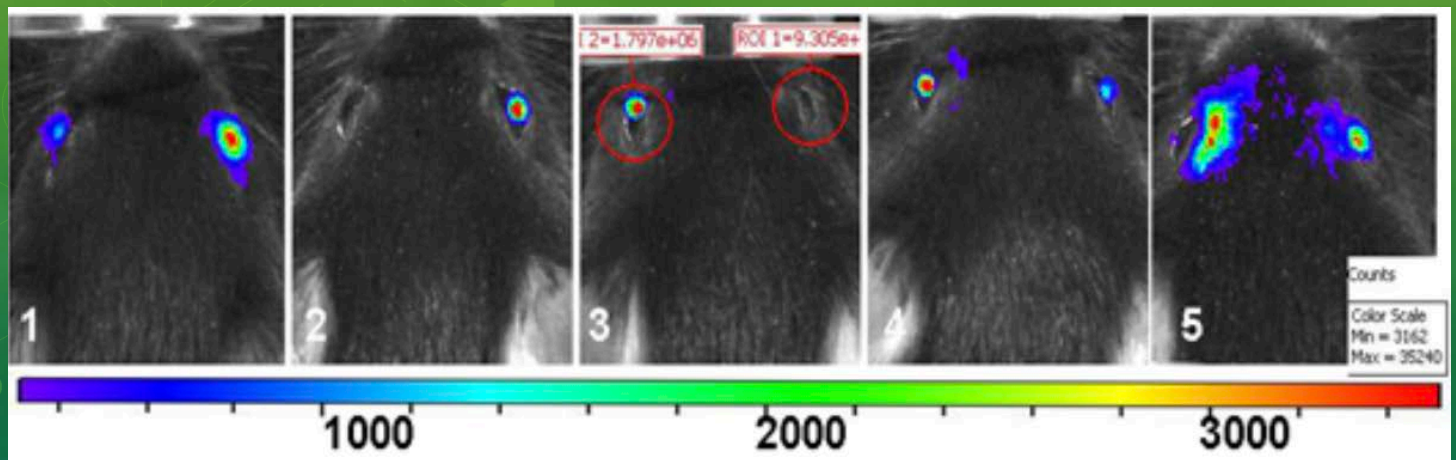


Figure 2. A screen shot of a treatment plan, shown on a CBCT of two mice.

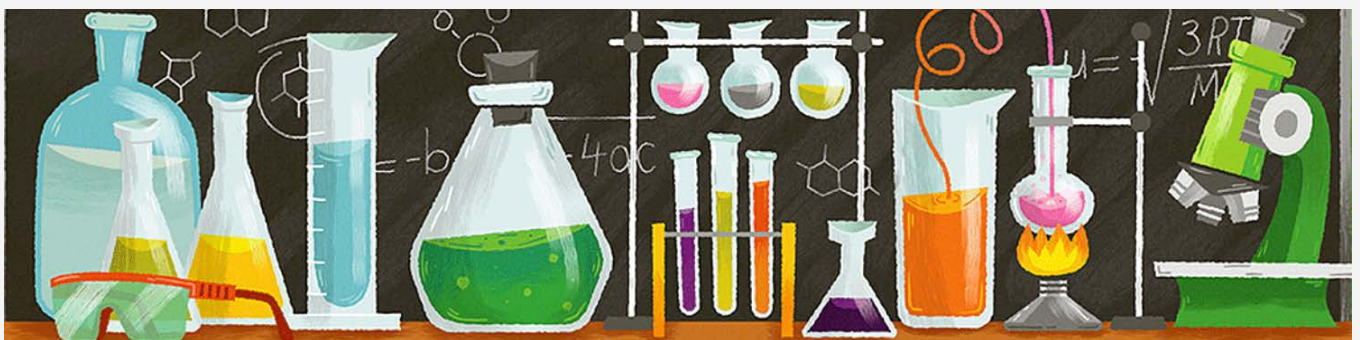


FEATURED IMAGE OF THE QUARTER



Bioluminescent images of mice injected with AAV₂-CMV-Luc and analyzed with the IVIS Lumina III by the Small Animal Imaging Facility. Mouse #1 was a positive control injected with recombinant luciferase in both eyes (1 μ l-right and 0.5 μ l-left). Mice #2 and #3 were injected with 0.5 μ l AAV₂-Luc in the right and left eyes, respectively. Mice #4 and #5 were bilaterally injected with 0.5 μ l of AAV₂-Luc. The intensity bar and counts are shown for mouse #1. Photo courtesy of Dr. Gorbatyuk, Ph.D.

FEATURE SPOTLIGHT



We'd like to hear from you!! We want to get feedback from our users about our core! Please click the survey link below to answer a few questions.

<https://forms.gle/Tek2A3BRRoW3NKEX8>



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?

You can find The Small Animal Imaging Facility at this years Cancer Center Retreat on October 13th at Regions Field!

Please register here:

<https://www.onealcanceruab.org/research/research-retreat/>

CONTACT INFO



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IMAGING FACILITIES

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

Prices effective 01/01/2022.

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

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 -pCT
PET/CT	\$200/hour + dosing	Sofie GNEXT PET/CT
	\$60/hour + dosing	Beta Eye 2D PET System
Gamma Camera	\$20/hour + dosing	Picker Camera with Numa computer
Specialty Fluorescent Imaging	\$100/hour	Li-Cor Pearl Impulse
		Luna/SPY Systems
		FMT 4000
Flow Cytometry	\$35/hour, non-assisted	Attune Flow Cytometer
	\$50/hour, assisted	
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**.

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

Please acknowledge **DK079337** and the **UAB-UCSD O'Brien Center** support for all preclinical imaging of the kidney and related biological processes.