

UC Davis

Resources for Catalyzing Research Interactions

Simon R. Cherry, Ph.D.

Department of Biomedical Engineering

Shared Resources

- Animal Imaging
- Biorepository
- Biostatistics
- Clinical and Molecular Pharmacology
- Clinical Trials Support Unit
- Combinatorial Chemistry (developing)
- Epidemiology (developing)
- Flow Cytometry
- Genomics
- Mouse Biology

Imaging Resources at UC Davis

**Center for
Biophotonics Science
& Technology**
(Light Microscopy)
Dennis Matthews

**Multi-Resolution
Imaging Facility**
(Light and Electron
Microscopy)
Jodi Nunnari

**Cancer Center
Animal Imaging
Shared Resource**

**Center for Molecular
& Genomic Imaging**
(PET, SPECT, CT, MRI,
Optical)
Doug Rowland

**Center for Imaging
Science (VM)**
(MR, CT, US, NM)
Erik Wisner

**Biomedical
Cyclotron Research
Facility**
(PET Cyclotron and
Radiochemistry)
Julie Sutcliffe

**Institute for
Regenerative Cures**
(Imaging Agent GMP)
Gerhard Bauer

Imaging Research Center (MRI)
Cameron Carter

Molecules/Cells

Small/Large Animals

Humans

Department of Molecular and Cellular Biology

Multi-Resolution Imaging Facility

Life Science Addition/Briggs Hall

Light Imaging

Scientific Coordinator: Michael Paddy

Faculty Director: Jodi Nunnari

Electron Microscopy

Scientific Coordinator: Rubin Diaz

Faculty Director: Jawdat Al-Bassam

Light Microscopy

Super Resolution Microscopy

Nikon Structured Illumination

Nikon 3D-STORM

3i Spinning Disk Confocal-TIRF-Widefield Microscope

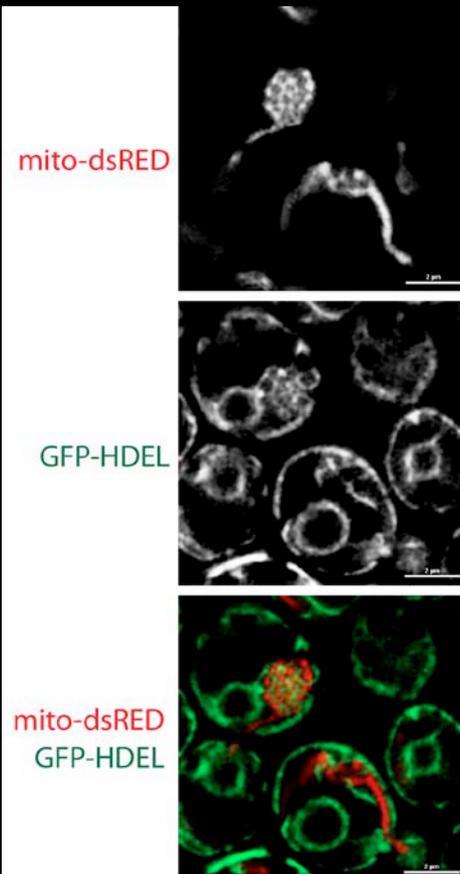
Olympus FV1000 Laser Scanning Confocal Microscope

API DeltaVision-Real Time (RT) Deconvolution Microscope

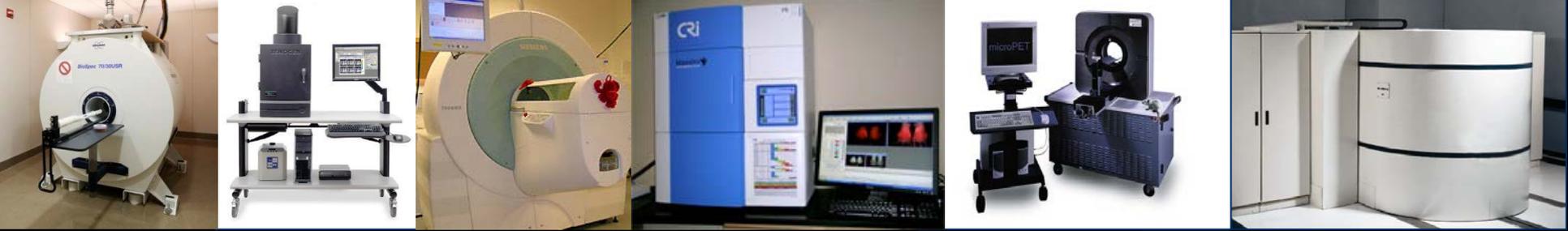
Electron Microscopy

JEOL 1230 transmission electron microscopy

JEOL 2100F cryo-electron microscopy



SIM Image: Laura Lackner
ER and mitochondria in $\Delta dnm1$ cells

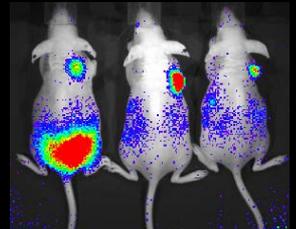
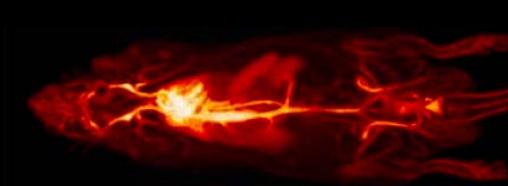
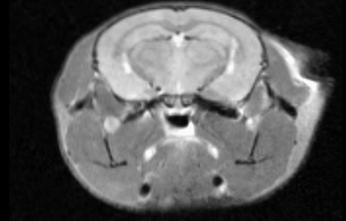
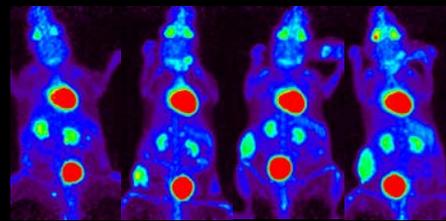


Center for Molecular and Genomic Imaging

Major Equipment

- PET: Focus 120 (Siemens)
- PET: Inveon DPET (Siemens)
- Optical: IVIS 100 (Caliper LS)
- MRI: Biospec 7T/30 (Bruker)
- Cyclotron: RDS 111 (Siemens)
- Hot Cells (Von Gahlen)
- Tracer Lab (GE Healthcare)

- PET: microPET P4 (Siemens)
- CT/SPECT: Inveon MM (Siemens)
- Optical: Maestro 2 (CRi)



Personnel

- 6.7 FTE Staff, 2 faculty directors



Doug Rowland

Dave Kukis

Steve Rendig

Michelle
Connell

Jennifer Fung

Lina Planutyte

Malena
Teeters



Center for Imaging Science (VetMed)



Scintigraphy



1.5 T MRI



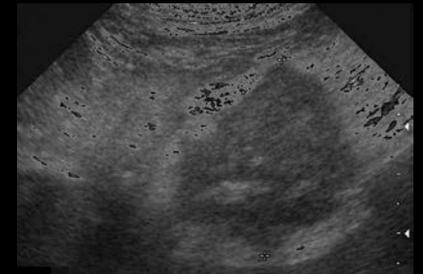
Ultrasound



Digital Fluoro/Radiology



Helical CT

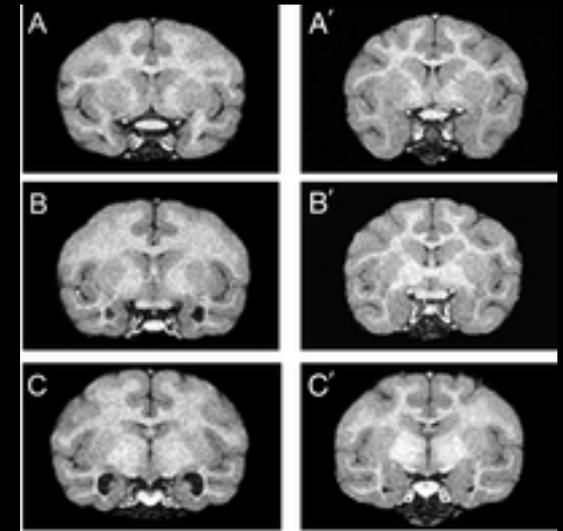
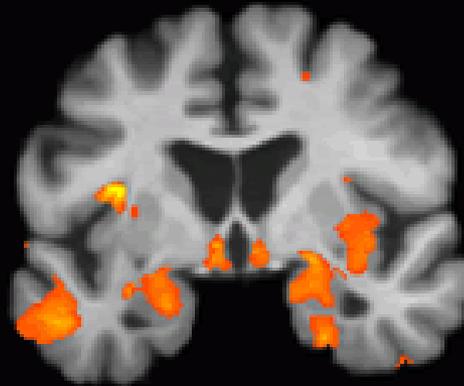


Imaging Research Center

Cameron Carter



3T MRI (Siemens Trio)
1.5T MRI (GE Signa)



Institute for Regenerative Cures

GMP Facility

Gerhard Bauer

- Manufacture of clinical grade products
- Largest academic facility in Northern California
 - 6 manufacturing suites
 - Clinical-grade fluorescent-activated cell sorter
 - GMP-grade hot cell for radiotracer synthesis

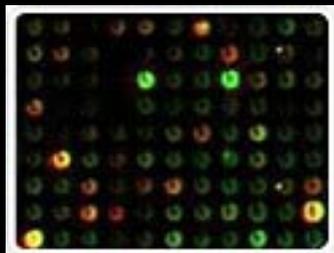


Other UC Davis Resources

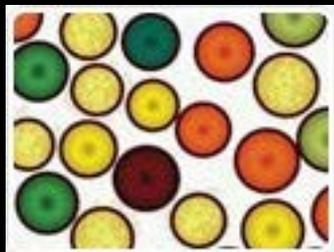
- Keck Caves
 - immersive scientific visualization environment
- McClellan Nuclear Research Center
 - 2 MW reactor
 - neutron tomography, neutron activation, radiation effects testing, isotope production
- Crocker Cyclotron
 - 68 MeV, 30 μ A (proton) isochronous cyclotron
- NMR Facility
 - Avance 400, 500, 600 and 800 MHz spectrometers
- UC Davis / JAX West
 - Engraftment of patient tumors in mice
- ...



Shared Resources Highlights



- Genomics
 - Illumina next generation sequencing
 - Affymetrix and Agilent microarrays
 - Nucleic acid isolation
- Combinatorial Chemistry
 - screening based on one-bead, one compound libraries
 - solution phase small molecule libraries



Shared Resources Highlights



- **Mouse Biology**
 - mouse model creation (transgenic, knockout, gene targeting....)
 - mouse phenotyping
 - mouse husbandry and maintenance



- **Biorepository**
 - procurement, preparation, and preservation of malignant, benign, and normal human specimens in a centralized repository

Shared Resources Highlights



- **Biostatistics**
 - sample size and power calculations
 - design for clinical trials



- **Clinical Trials Support Unit**
 - coordination and supervision of clinical trials
 - quality assurance, data & safety monitoring



- **Molecular & Clinical Pharmacology**
 - kinetic analyses for clinical and preclinical chemotherapeutic drug development studies

Contacts

Biomedical Technology Program Co-Leaders

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