

Shared Resource Management

MARIAN WATERMAN, PHD

EAB 2025

MARCH 14, 2025



Leadership



Marian Waterman, PhD
AD for Shared Resources

EXPERTISE

- Professor Emeritus of Microbiology & Molecular Genetics
- Co-Director, Cancer Systems Biology Center
- Research interests: Wnt signaling in stem cells and cancer; systems biology; colon cancer

ROLES

- Provides scientific and strategic leadership to integrate the SRs with CFCCC member scientific needs
- Oversight of SRs through direct interactions with ADs and SR Directors/Managers

LEADERSHIP RESPONSIBILITY

- Survey members for technology and services needs
- Advocate to CFCCC leadership for Shared Resources
- Monitor and Shared Resource usage, capacity and financial trends and promote usage
- Work with Shared Resources to facilitate Education & Outreach

Objective & Specific Aims

OBJECTIVE

Shared Resource Management (SRM) provides financial support and administrative management of the seven CFCCC Shared Resources (SRs) that support the conduct of basic, clinical, translational and population science and facilitate high-impact cancer research. SRM ensures that SRs are cutting-edge, affordable and accessible and that they operate at the leading edge of their respective disciplines

AIMS

1

Policies & Access

To **support and facilitate cancer center member access to technologies, services and expertise** that enhance scientific interactions and productivity

2

Monitoring & Satisfaction

To ensure **stability, reliability, cost-effectiveness and quality** of research resources

3

Evaluation & Development

To **evaluate the scientific needs** of cancer center members and **facilitate the development** and/or purchase of new technologies, services and methodologies

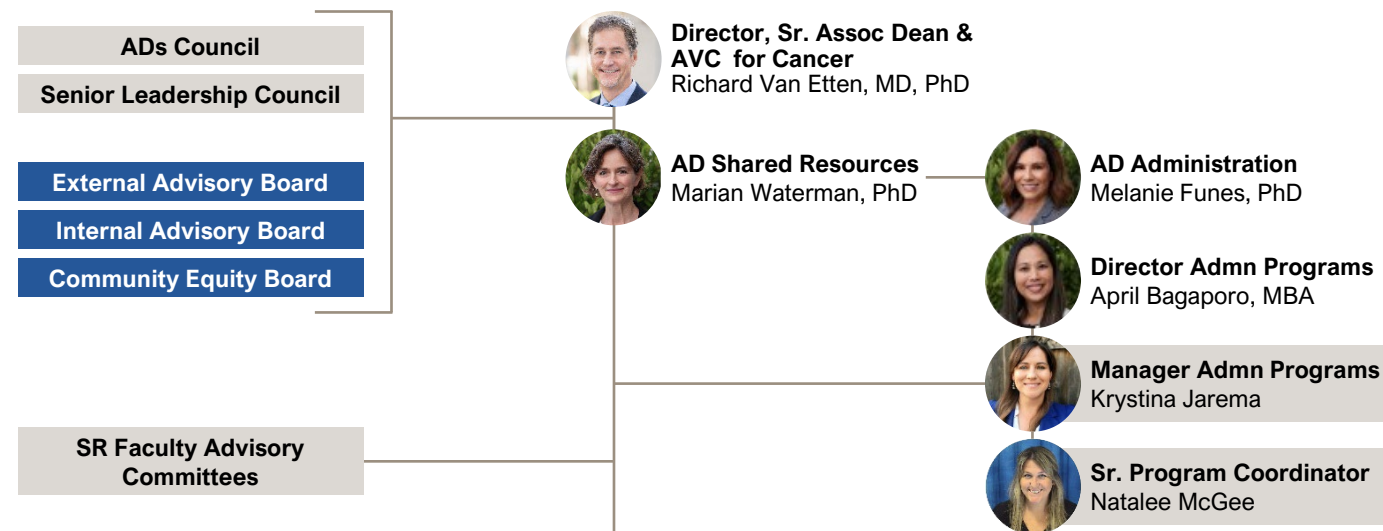
Shared Resources

7 Service-Providing SRs + 1 *Developing SR*

	SHARED RESOURCE	2021 NIH MERIT RATING
Basic Science	 Transgenic Mouse Facility (TMF)	Outstanding
	 Optical Biology Core (OBC)	Exceptional
	 Genomics Research & Technology Hub (GRT Hub)	Excellent to Very Good
	 <i>Mass Spectrometry (MS)</i>	<i>Developing</i>
Clinical Science	 Experimental Tissue Resource (ETR)	Excellent
	 In-Vivo Functional Onco-Imaging (IVFOI)	Excellent to Outstanding
Population Science	 Biostatistics Shared Resource (BSR)	Excellent to Outstanding
	 Biobehavioral Shared Resource (BBSR)	Very Good to Excellent

Team, Governance & Organizational Structure

Oversight, management and bidirectional communication with CFCCC users and stakeholders



FREQUENCY

Quarterly with CFCCC leadership
Bi-weekly with senior leadership

FUNCTION

Quarterly meeting to advocate for Shared Resource and CFCCC membership needs

AUTHORITY

Director and Deputy Director chair meetings communicating strategic priorities and gather Shared Resource feedback and needs

Response to EAB Review



STRENGTHS (2021 NIH Summary Statement)

“...the CFCCC demonstrates effective management and oversight of the Shared Resources...and effectively leverages informal and formal mechanisms to support high-impact cancer research

CRITIQUE

RESPONSE

Leadership: ensure timely replacement of critical leadership positions to maintain SR effectiveness

- Assistant Director program in place for 3 Shared Resources and active recruitment for others
- Recruitment for Associate Director for Shared Resources

Low user volume (BBSR, BSR, IVFOI): expand services and foster collaborative projects

- BSR is developing collaborative efforts with GRT Hub; BBSR has expanded services (consult, implementation science training; biomarker data collection); IVFOI encouraging users to utilize iLab

BBSR: New leadership may consider “In Development” status

- BBSR is strongly supported by the CFCCC
- Discussions are ongoing about “Development” status

BSR: Support from recharges is low

- New policies in place to include BSR personnel as line-item budget in grant applications (~5%)

ETR: Process for tracking volume vs. ETR capacity; Processes for procurement & distribution described

- iLab tracks capacity vs. demand. ETR is at 86% capacity for histology services and 60% for tissue procurement. Procurement/Distribution processes, maps and forms, are available on ETR iLab website

GRT Hub: Potential for Outstanding-Exceptional with increased # of High Impact Pubs, increased usage

- 35% High Impact publication
- Increased usage from SPT and CC programs

IVFOI: provide Ultrasound services; increase usage

- Multiple ultrasound technologies are available and under installation
- MRI services added to IVFOI portfolio

OBC: Exceptional, but could increase CFCCC users

- OBC iLab added 10 imaging systems in the Laboratory for Fluorescence Dynamics (LFD)
- Partnering with LFD imaging workshops and outreach events

TMF: Potential for Outstanding-Exceptional with improved Turnaround Times

- Experienced mouse micro-injectionist hired; second micro-injectionist in training
- Additional staff leveraged for CFCCC projects, reducing turnaround times

Policies that Facilitate Access and Prioritize Cancer Research

58% of CFCCC members use a SR

- Host and manage software for on-demand reporting and aggregate data analysis (iLab, EVAL)
- CFCCC members have Priority Access to Shared Resources
- CFCCC provides a User Subsidy of 7% for members
- CFCCC assists in organization, scheduling and marketing Shared Resource presentations, workshops, updates, seminars, and events





BIG DATA TRAINING FOR CANCER RESEARCH

Dates:
July 7-18, 2025

Location:
University of California, Irvine

ABOUT WORKSHOP
The Chao Family Comprehensive Cancer Center (CFCCC) of the University of California, Irvine is pleased to announce the annual NCI-funded workshop on "Big Data Training for Cancer Research" (BigCARE) on **July 7-18, 2025**. This intensive workshop will help cancer researchers develop skills for managing, visualizing, analyzing, and integrating various types of omics data in cancer studies. The workshop is open to oncologists, faculty, postdoctoral researchers, and graduate students.
There is **no cost** for registration, tuition, food, and lodging! We will continuously review applications monthly until all spots are taken.

APPLICATION DEADLINE:
Monday,
March 31, 2025

APPLY TODAY!


bit.ly/bigcare2025

More Info:
<http://bigcare.ucl.edu>

Contact Us:
bigcare@ucl.edu

UCI Office of Research **UCI** Chao Family Comprehensive Cancer Center **UC Irvine** Joe C. Wen School of Population & Public Health

**Workshop on Statistics and Machine Learning in Genomics**

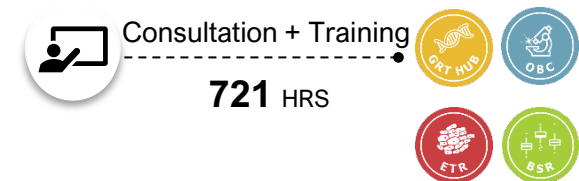
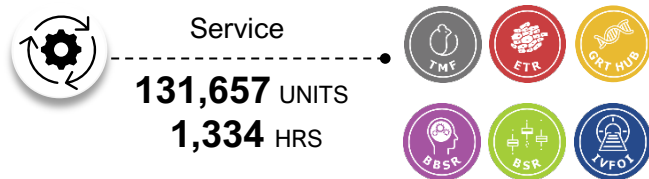
Sponsored by the Genomics Research and Technology Hub

When: Tuesday, March 18, 2025
Time: 9:00 a.m. to 1:00 p.m. Light refreshments will be served.
Where: Sprague Hall, Room 105
Required: Personal laptop (Mac or Windows) and IIPC3 account
Instructors: Jenny Wu, PhD and Ivan Chang, PhD
Registration is required: \$50 - [Register Here](#)

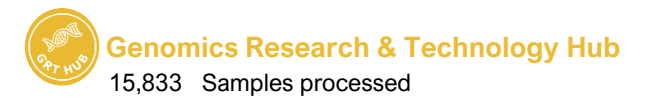
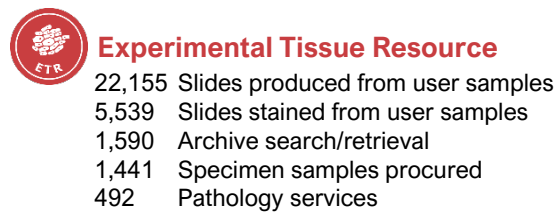
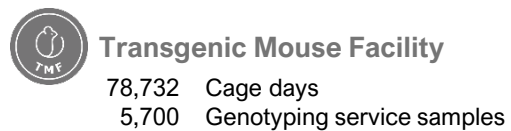
This workshop will introduce the applications of statistical and data science methods towards genomics including generalized linear models in count data, pathway analysis, and imaging data analysis. We will review basic concepts in statistics and machine learning, supervised and unsupervised modeling, and generative vs. discriminative approaches. A hands-on session is emphasized and will showcase how to use R and Python to perform common analysis tasks in genomics. **Attendees are encouraged to bring their own project data for analysis and discussion.**

Agenda
8:30 – 9:00 a.m. - Light Refreshments
9:00 – 10:15 - Introduction to Statistics and machine learning in genomics (Jenny Wu, PhD)
10:15 – 11:20 - Machine learning in imaging data with Python (Ivan Chang, PhD)
11:20 – 11:40 - Break
11:40 – 1:00 - Q and A and hands on session (Jenny Wu, PhD and Ivan Chang, PhD)

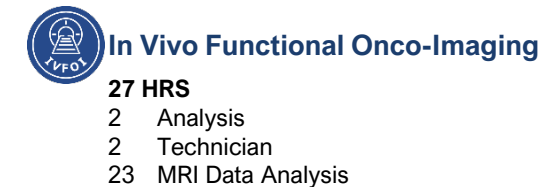
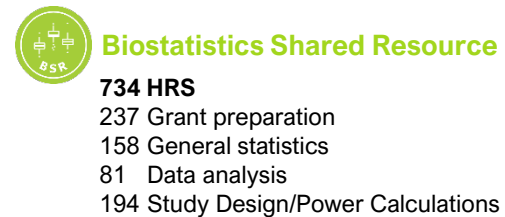
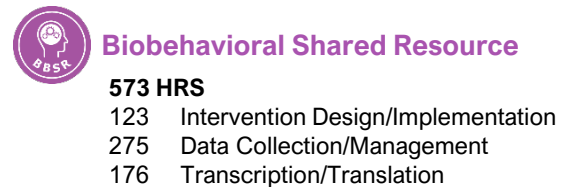
2024 Service Snapshot



UNITS



HOURS



Stability, Reliability, Cost-Effectiveness and Quality of SRs

Stability and Reliability

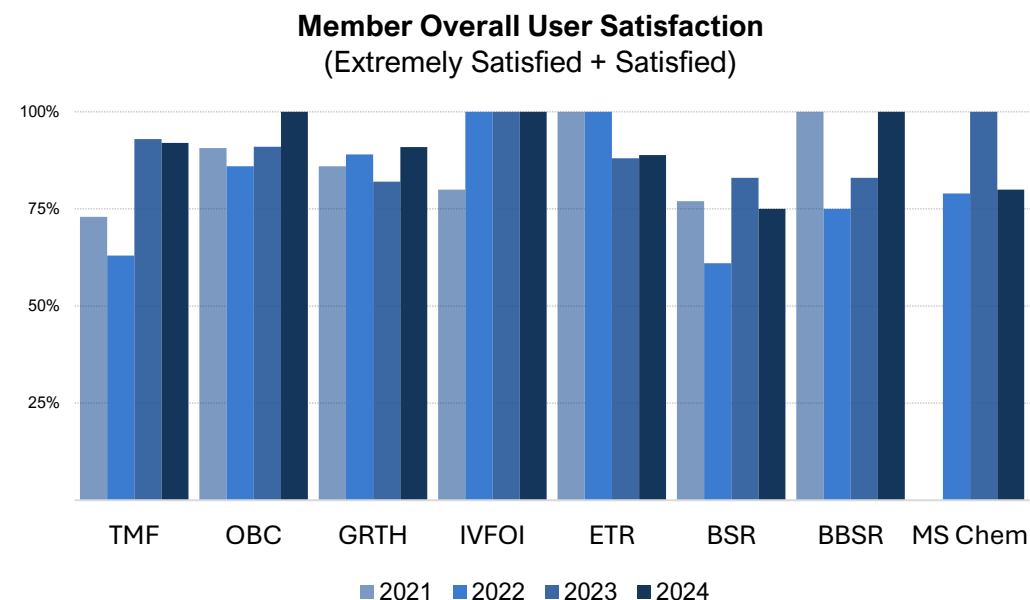
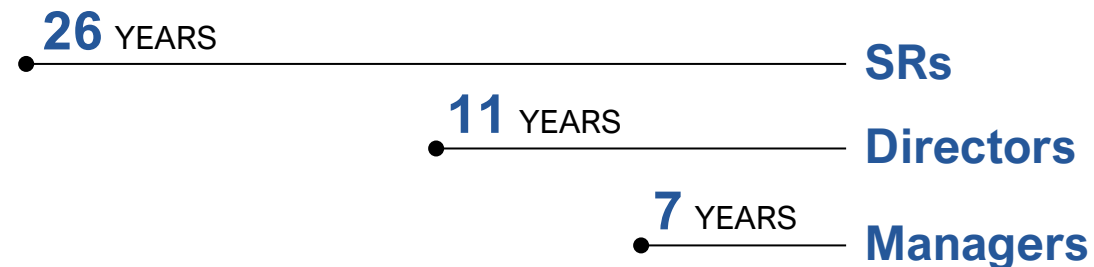
- SRs: 25 years average length of service (range: 21 - 30 yrs)

Cost Effectiveness

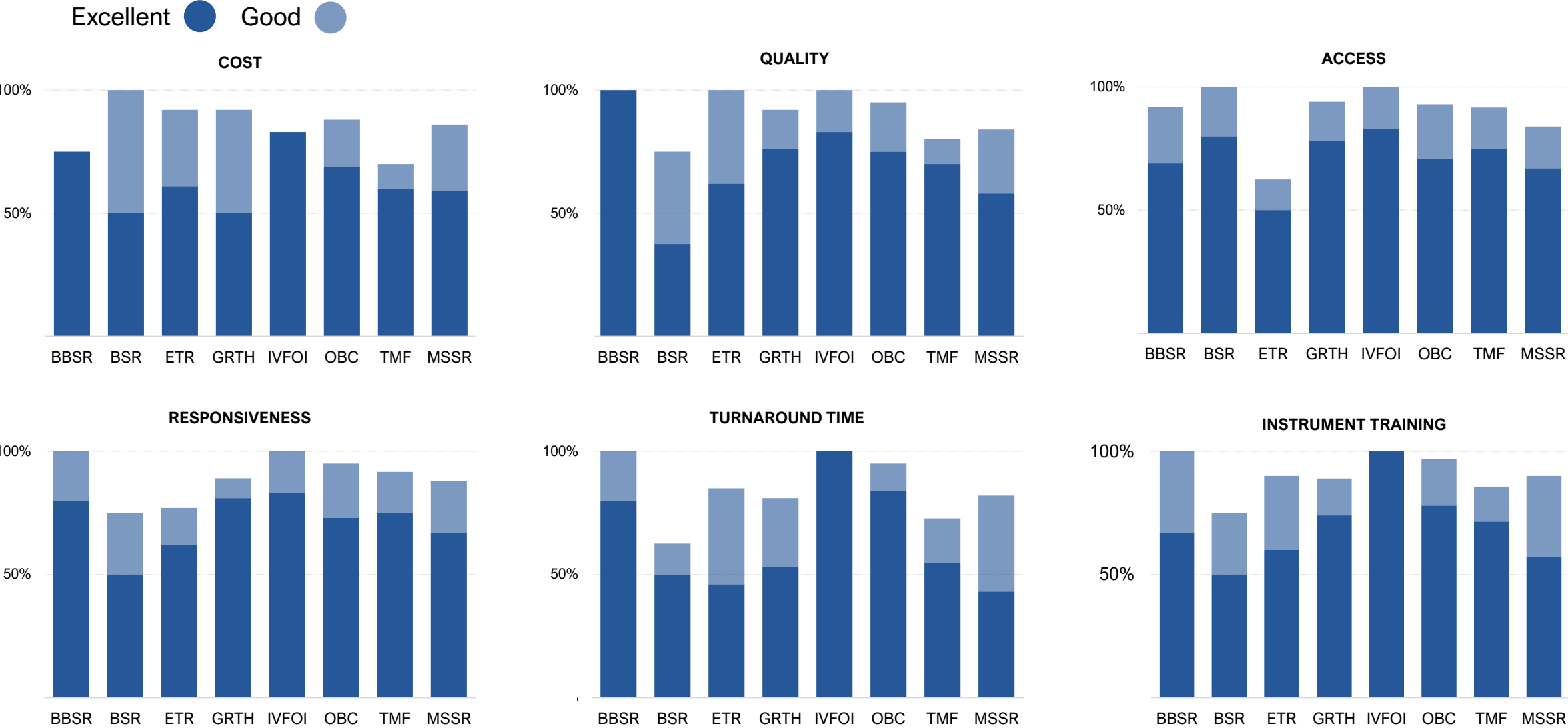
- Favorable Cost Comparisons across Southern California
- Publication Rebate Program
 - 2024: Rebate system serviced 9 members
- 7% subsidy for CFCCC members
 - 2024: 66 members qualified (~\$43K)
- Grant Assistance & Consult

Quality

- Quality monitored via annual user surveys
- Annual Internal Advisory Committee focus on quality
- Annual CFCCC External Advisory Board
- Quarterly Shared Resource meeting with CFCCC leadership



2024 Annual Core Research Facilities Survey



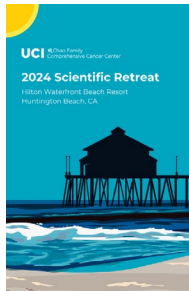
Identify Needs and Facilitate New Technology, Services and Methods

NEEDS

Annual Core Facilities Survey
(April 2024)



Scientific Retreat
(November 2024)



Program Leader and Shared Resource
(Quarterly meeting)

ADMINISTRATION

iLab (Agilent) management for Shared Resources

Facility renovation for Mass Spec High-End Metabolomics (*developing*)



Collaboration Engine: Mass Spec High-End Proteomics – 5 applications, 2 funded



Transient interactions in the Hippo Tumor Suppressor Pathway



H⁺ membrane channel (hHLV):Alb interactions in breast and colon cancer

UPGRADES



Video tutorials and in-person workshops for training in mouse genetics best practices (*under development*)



Automated Slide Scanner (purchase in process); 10 systems in Laboratory for Fluorescence Dynamics added



NovaSeq X Plus; Pac Bio Revio; 10x Genomics Xenium



Ultrasound system installed; small animal test in Lumitron system planned (breast cancer)



Training/consulting on biomarker collection best practices and intervention design/implementation



High-end metabolomics. Orbitrap Exploris 480

Member Support

Educational and Research Development Highlights



Transgenic Mouse Facility

- New website (<https://transgenic.uci.edu>) hosts cancer-focused section
- *In development*: video tutorials & training workshops for mouse genetics
- Personalized one-on-one training with Cancer Center clients, at no cost
- Language, figures and LOS for grant proposals & manuscripts, at no cost



Optical Biology Core

- Lectures, workshops, working groups, training sessions each for Self-Use Facility, Flow Cytometry Facility and Nonlinear Optical Microscopy Lab
- Coordination with GRT Hub and ETR to develop training sessions and online resources for spatial 'omics technologies
- SUF, NLOM, participation in 4-day hands-on LFD workshop on advanced Imaging methods



Genomics Research & Technology Hub

- Host: GRT Hub Genetics, Biomedical Computation & Genomics Symposium on Spatial Transcriptomics (April 23, 2024)
- 8 bioinformatics hands-on workshops (avg. 10–15 participants)
- Hands-on training: Nuclei Isolation (October 2024)
- 24 technical lectures and research seminars
- Coordinating with OBC and ETR to develop training sessions and online resources for spatial 'omics technologies



In Vivo Functional Onco-Imaging

- 3 outreach seminars: medical residents, SOM leaders, BioSci faculty
- Imaging rotation training for 45 biomedical engineering undergraduates
- Training on 3T MRI and F



Experimental Tissue Resource

- 1:1 consultations and training
- Presentations at bootcamps and fellowship programs
- Resource for multiplex IHC and spatial 'omics technologies
- Coordinating with GRT Hub and OBC to develop training sessions and online



Biostatistics Shared Resources

- *Scheduled for July 2025*: NCI-funded R25 summer workshop on “Big Data Training for Cancer Research” (bigcare.uci.edu)
- BSR service flash talks at all 7 DOTs
- BSR walk-in offered 3-days per week
- Presentation in CRTEC Cancer Clinical Trial bootcamp
- Participate in Cancer Control and GRT Hub meetings



Biobehavioral Shared Resource

- *Scheduled for 2025*: Workshop on the use of ORBIT models for early phase behavioral intervention research
- BBSR Services Presentations
- Workshop for Radiation Oncologists: Qualitative research design and thematic coding
- Cancer Clinical Trial bootcamp: Selection and Inclusion of Patient-reported Outcomes in Clinical Trials, overall study design, and project development



Mass Spectrometry (*in development*)

- Collaborative Engine Pilot Grant Program (High-End Proteomics)
- System installation and Training (High-End Metabolomics)
- R25 Cancer Systems Biology Lecture & Demo: Spatial Metabolomics (MS facility)

Mass Spectrometry Shared Resource

SERVICE PROVISION

Support Users



Sergey Pronin, PhD
MS Director



Felix Grun, PhD
Manager

Mass Spectrometry Facility Dept. Chemistry

Open access – 24/7 – recharge model

Routine use and characterization

20 instruments and **~250** users

- ✓ LC-MS (quadrupole)
- ✓ LC-MSMS (QTOF, TOF/TOF, triplequad)
- ✓ MALDI TOF, GC (quadrupole and TOF)
- ✓ LC IT-TOF instrument systems

Update:

- iLab onboarding for MS SR
- Shimadzu Spatial Metabolomics Systems



COLLABORATION

Advanced Science + Technology



Lan Huang, PhD
MS Co-Director, High-End MS

High-end Mass Spectrometry Facility Dept. Physiology & Biophysics

- ✓ Thermo Orbitrap Fusion™ Lumos™ Tribrid™ coupled to a Thermo UltiMate 3000 UHPLC
- ✓ Thermo Orbitrap LTQ XL in-line with a Thermo EASY-nLC 1000 Liquid Chromatograph
- ✓ Agilent 1260 Infinity II & Agilent 1260 Infinity II Bio-Inert LC systems

CFCCC Investment:

Instrument maintenance
Technician support

Update:

- Collaboration Engine
- Funded two projects



Cholsoon Jang, PhD
MS Co-Director, Metabolomics

High-end Metabolomics Facility Dept. Biological Chemistry

- ✓ Thermo Scientific™ Orbitrap™ Exploris 480 w/ EASY-IC
- ✓ Vanquish NEO SYSTEM liquid chromatography (capillary LC)
- ✓ GENIUS XE35 Nitrogen gas generator

CFCCC Investment:

200sq ft space in Sprague Hall
\$100K – instrument purchase

Update:

- Renovation
- New instrument training
- \$50K space renovation

Future Plans

AIMS

1

Policies & Access

- Utilize iLab to track and ensure consistent CFCCC member use
- Evaluate iLab financial integration package for potential to align with UC financial reporting system (KFS)
- Utilize iLab data to track capacity v. demand for all SRs
- Ensure SR websites display updated information and user-friendly navigation

2

Monitoring & Satisfaction

- Collaborate with UCI School of Medicine for rollout of 2025 Shared Resource Survey
- Work with SRs to address issues of need highlighted in the survey
- Evaluate Access and Enhancement programs for impact (user subsidy, Collaboration Engine awards, etc.)
- Evaluate readiness of low usage SRs for competing renewal application

3

Evaluation & Development

- Further develop Assistant Director SR program
- Collaborate with SRs to address personnel and technology needs
- Broadcast SR events, workshops, seminars, hands-on training programs
- Manage official roll-out of the matrixed MS SR

Questions?
