

Shared Resources

Monthly Newsletter



Message from the Director of In Vivo Translational Imaging

- Abhijit Chaudhari, Ph.D.

Welcome to our third Cancer Center Shared Resources monthly newsletter.

As we embrace the arrival of spring, I would like to extend a warm welcome to each one of you to learn about our vibrant Shared Resources community. It is a community of dedicated individuals who share a common purpose: to advance cancer research and provide exceptional resources to further your scientific endeavors. Whether you are a researcher, clinician, patient, or supporter, your presence enriches our community, and we're profoundly grateful for that.

Allow me to introduce myself - I am the Director of the In Vivo Translational Imaging Shared Resource (IVTISR) of the Cancer Center. Our esteemed co-directors are Drs. Allision Zwingenberger, DVM, MAS, and Lorenzo Nardo, M.D., Ph.D. The IVTISR provides access to a broad range of *in vivo* medical imaging technologies that include positron emission tomography (PET), computed tomography (CT), magnetic resonance imaging (MRI), single-photon emission computed tomography (SPECT), ultrasound, and optical imaging. Imaging studies supported span biospecimen, small animal models, larger animals (such as cats and dogs), and in humans. Notably, we have a dedicated biomedical cyclotron and radiochemistry facilities for developing and synthesizing PET radiotracers for preclinical applications. Our team provides expertise in planning, executing, and analyzing *in vivo* imaging studies, writing of grant proposals, and establishing imaging biomarkers across a range of oncological conditions. Moreover, we offer a range of training opportunities, including hands-on experience with imaging instruments, imaging data analysis, and support for training grants.

The IVTISR stands as one of nine outstanding Cancer Center Shared Resources. Together, these resources forge ahead, united by a common purpose: to transform cancer care and improve lives.

I encourage you to see what the Cancer Center Shared Resources can do for you. Please visit the [Comprehensive Cancer Center webpage](#) for more details on our services.

Wishing you an April filled with progress, compassion, achievement, and the promise of brighter days.

Warm regards,
Abhijit Chaudhari

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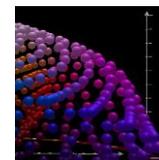
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Shared Resources

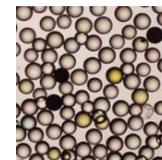
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Biorepository
(BRSR)



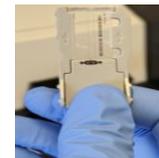
Biostatistics
(BSR)



Combinatorial
Chemistry and
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(CCBSR)



Flow Cytometry
(FCSR)



Genomics
(GSR)



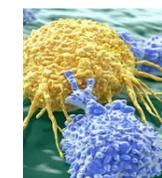
In vivo Translational
Imaging
(IVTISR)



Mouse Biology
(MBSR)



Molecular
Pharmacology
(MPSR)



Immune Modeling,
Analysis and
Diagnostics
(IMADSR)

Molecular Pharmacology Shared Resource (MPSR)

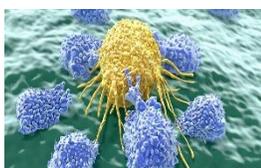


The MPSR provides a mechanism for high-quality collection, processing, and analysis of clinical specimens from clinical trial patients for pharmacokinetic and pharmacodynamics studies. Additionally, the MPSR conducts preclinical modeling studies on novel anticancer agents or therapeutic combinations and implements molecular pharmacological research with clinical impact.

[Dr. Aiming Yu](#) is the Director for MPSR and Anthony Martinez is their Technical Director.

If you are the principal investigator of clinical trials seeking to incorporate translational and/or pharmacokinetic and pharmacodynamic studies into your trial design or generating exploratory or validation preclinical modeling for new agent development or concept proof-of-principle, then email [MPSR](#) to find out more about their services and how they can support your trials.

Immune Modeling, Analysis and Diagnostics developing Shared Resource (IMADSR)



The IMADSR is our developing Shared Resource under the guidance of Dr. Emanuel Maverakis. They provide comprehensive, up-to-date immune monitoring services for clinical and translational studies to support investigators and industry partners who want to characterize the immune system in the setting of disease, especially autoimmunity and cancer. Dr. Maverakis' group has a wide variety of interests including immunotherapies for melanoma, T cell mediated skin diseases, and the murine models of autoimmunity. Clinically, Dr. Maverakis specializes in the treatment of

patients with severe immune-mediated systemic diseases involving the skin.

IMADSR's services include:

- Basic standardized service - immune cell profiling via flow cytometry including intracellular cytokine detection and cell surface phenotyping. Multiplex analyte detection (Luminex-based multiplex assays), immune cellular assays (CFSE dilution, antigen-specific and non-specific responses and cytokine production), and gene expression profiling (Illumina-based whole transcriptome sequencing, qRT-PCR arrays, etc.) are also available. Affordability is a priority for all services provided.
- Single cell sequencing - including REAP-Seq, CITE-Seq, targeted scRNA-Seq, and scTCR/BCR-seq. The IMADSR is also skilled at isolating cells from various sources (e.g., skin, tumor, and intestine). All analysis is performed in-house.
- Banking service - patient specimen processing and storage using electronic sample management and tracking systems. Sample acquisition, isolation, storage, and distribution are performed according to verified and validated standard SOPs, which provide consistent processes for all research activities from sample to sample, investigator to investigator, and study to study. Peripheral blood is ideal for immune monitoring; however, the IMADSR has established protocols for sample processing obtained from other sources such as skin, tumor, saliva, and urine. Large reliable data stores protect all information.
- Murine models of autoimmunity and cancer - individual consultation on experimental design and appropriate sample collection for analysis. The shared resource provides expert advice for optimal project-specific immunologic assessment and innovative approaches to evaluate immune responses in clinical studies.
- Consulting service - individual consultation on experimental design and appropriate sample collection for analysis. The shared resource provides expert advice for optimal project-specific immunologic assessment and innovative approaches to evaluate immune responses in clinical studies.
- Diagnostic tests - [Clinical Laboratory Improvement Amendments](#) (CLIA) certified laboratory which offering diagnostic tests such as TCR and BCR rearrangement studies.

Visit [IMADSR](#) to learn more or [email](#) them if you would like to access their services.

Faculty Spotlight – Dr. Nam Tran, Ph.D.

Dr. Tran currently holds the positions of Professor and Senior Director of Clinical Pathology at UC Davis Health. He is certified as a high complexity laboratory director (HCLD) by the American Board of Bioanalysis (ABB) with specialization in clinical chemistry, toxicology, and molecular diagnostics. In addition to these roles, he serves as the Director of the Biorepository Shared Resource (BRSR) and Co-Director of the UC Davis Center for Diagnostic Innovation (CDxI).



Dr. Tran earned his Ph.D. in Comparative Pathology from UC Davis, followed by a postdoctoral stint under the NIBIB Point-of-Care (POC) Technologies Research Network. Notably, he secured a \$1.86M grant from the Department of Defense soon after completing his Ph.D. on rapid molecular pathogen detection in severely burned patients. This grant paved the way for his appointment to the faculty of the Department of Pathology and Laboratory Medicine in 2011. Thereafter, Dr. Tran participated in the CTSC's Mentored Clinical Research Training Program as junior faculty and later became an NHLBI K12 emergency medicine scholar. By 2014, he assumed the role of Director of Clinical Chemistry, Special Chemistry/Toxicology, and POC testing. In 2020, he took over as Senior Director of Clinical Pathology.

Dr. Tran's current research primarily revolves around developing, applying, and integrating novel diagnostic tests into laboratory and POC settings. This endeavor has expanded into the realm of artificial intelligence (AI) and machine learning (ML), leading to the co-development of an automated ML software called the Machine Intelligence Learning Optimizer (MILO). Commercialized through a start-up company co-founded by Dr. Tran and colleagues, MILO represents a significant and timely milestone for his investigative team. As an expert in clinical chemistry, POC testing, and molecular infectious disease testing, Dr. Tran's track record of bringing assays to clinical practice is evident through numerous impactful clinical assays deployed at UC Davis Health.

During the COVID-19 pandemic, he was the chief-architect for the UC Davis Health SARS-CoV-2 assay development strategy - ultimately deploying five unique clinical assays addressing dynamic patient care needs for our health system. He simultaneously served as Principal Investigator for several FDA-regulated clinical studies to expedite new assay approvals via emergency use authorization and was responsible for mobilizing the BRSR to bank COVID specimens. During this time, Dr. Tran also served as an active member of the California Governor's COVID-19 task force throughout the pandemic, and later his work evolved to support the MPOX outbreak of 2022.

This work in diagnostic innovation culminated in Dr. Tran's co-founding and co-directorship of the CDxI, which recently established its own CLIA-certified clinical laboratory dedicated to investigational testing and development of laboratory-developed tests. Later this year, Dr. Tran will also assume the role of chair for the Critical and POC Testing Division within the Association for Diagnostic and Laboratory Medicine, tasked with providing global leadership in critical and POC testing.

Outside of his professional endeavors, Dr. Tran enjoys international travel and spending time with his beloved pets, including two Belgian Malinois dogs and a Corgi.

You can email [Dr. Tran](#) or [click here](#) to learn more about him and his research interests.

Biostatistics Shared Resource Virtual Office Hours

The Biostatistics Shared Resource (BSR) provides biostatistical support for clinical, population, and basic science researchers. To better support the study design and data analysis efforts of our members, BSR offers weekly office hours in collaboration with the Clinical and Translational Science Center as follows:

- 1st and 3rd Monday, 1-2 p.m.
- Tuesdays, 12-2 p.m.

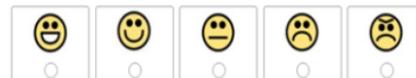
For more information, contact [Dr. Lihong Qi](#) or [schedule an appointment today!](#)

Flow Cytometry Shared Resource (FCSR) Online Training Course: June 24-28

Did you miss February's Comprehensive Flow Cytometry Course? Mark your calendar now for the next offering, June 24-28, 2024. This course is designed to teach the fundamental concepts of how flow cytometers work and discuss best practices in sample preparation. A limited number of competitive scholarships are available for CCC members. Don't miss this opportunity to receive comprehensive training in this important analysis technique. Registration will open this spring.

Please contact [Bridget McLaughlin](#) for more information.

Shared Resources Post Service Evaluation



Shared Resource Management introduced the new bi-annual post-service evaluation in January to get immediate and anonymous feedback from users.

Thank you to those who completed the January and February evaluations. March evaluations will be sent to CCCBSR, MBSR, and MPSR users.

Users who respond to this request will be given the opportunity to provide their contact details to be entered into a drawing to win gift cards!

Research Program Featured Speaker

A joint Comparative Oncology Program (COP) and Molecular Oncology Program (MOP) meeting will be held on Thursday, April 4 from 10-10:50 a.m. Mouse Biology Shared Resource (MBSR) Director Dr. Kent Lloyd will give a 25-minute talk followed by Q&A. Zoom meeting details and seminar flyer are below:

RESEARCH PROGRAM FEATURED SPEAKER

Comparative Oncology & Molecular Oncology



K. C. Kent Lloyd, DVM, PhD

Distinguished Professor
Department of Surgery

Dr. Lloyd is the Director of the Mouse Biology Program and the Mouse Biology Shared Resource. The MBSR serves the Cancer Center's basic, clinical, and translational researchers through the development of mouse models, coordination of resources, and more.




Meeting Details
APRIL 4, 2024
10:00-10:50 am
[JOIN BY ZOOM](#)

Shared Resources Upcoming Events and Outreach Activities

- **Quarterly Shared Resource Directors Meeting:** 2 p.m. Monday, Apr. 22 in the Mouse Biology Program Conference Room, 2795 2nd St, Suite 400, Davis, CA 95618 and via [Zoom](#)
- **Joint COP & MOP Meeting:** 10-11 a.m. Thursday, Apr. 4 via [Zoom](#)
- **UC Davis Research Expo:** 10 a.m.-3 p.m. Thursday, Apr. 18 @ UC Davis Conference Center, Davis Campus, 550 Alumni Ln, Davis, CA 95616
- **8th Annual Spotlight on Early Career Investigators:** 10 a.m.-3 p.m. Thursday, Apr. 25 in the Education Building, 1st floor lobby and Lecture Hall 2222, Sacramento Campus, 4610 X St, Sacramento, CA 95817
- **2024 Shared Resources Workshop Series:** hybrid format (in-person and Zoom), details to follow: First SR workshop will be from 1-2 p.m. Thursday, May 9

NOTICE TO ALL NIH-FUNDED INVESTIGATORS

Shared Resources are funded by the UC Davis Comprehensive Cancer Center Support Grant (CCSG) awarded by the National Cancer Institute (NCI P30CA093373). Publications that have utilized facility resources, services or scientific data generated using shared resources should acknowledge the shared resource(s) or the assistance provided by their staff and cite the CCSG (NCI P30CA093373). An electronic copy of the publication should also be sent to the directors of the SRs that were used.

[National Institutes of Health \(NIH\) public access policy](#)

CONTACT SHARED RESOURCES

To view previous newsletters, please visit: [Shared Resources Monthly Newsletter](#)

For articles or questions, please email: [Cancer Center Shared Resources](#)