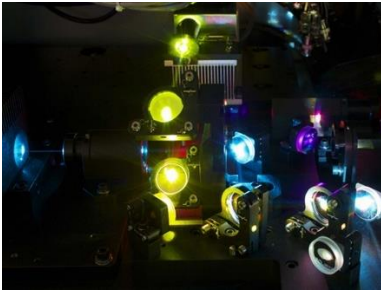


## Shared Resources Newsletter - October 2024

### Welcome Message from the Flow Cytometry Shared Resource



Welcome to the October 2024 issue of the UC Davis Comprehensive Cancer Center Shared Resources monthly newsletter. This month we are highlighting the **Flow Cytometry Shared Resource (FCSR)**. The FCSR supports cancer and biomedical researchers by providing uninterrupted access to complex flow cytometers and cell sorters and assists users in learning to operate these systems to generate high-quality, reproducible data.

The FCSR is overseen by **Dr. Barbara Shacklett** and managed by **Bridget McLaughlin**, who direct the FCSR's facilities in Davis in Tupper Hall and in Sacramento in the Institute for Regenerative Cures. These facilities are staffed by experienced flow cytometry technical personnel who, along with Ms. McLaughlin, assist users, manage and maintain several flow cytometers for shared use, and are available to plan cytometry experiments, acquire data, troubleshoot problems and analyze results. The FCSR will also open a new facility in Aggie Square that will feature additional cell sorting and analytic cytometry equipment.

The FCSR's equipment and services are open to all investigators throughout UC Davis and the Sacramento region. Cancer Center members are supported by the Cancer Center and the FCSR through prioritization of services and subsidized rates.

Most investigators turn to the FCSR for its cell separation services or to access its multi-laser analytic cytometers that characterize cell phenotype and function. These sorters and cytometers are complex cellular analyzers that use a combination of lasers to rapidly excite fluorescently-tagged biomarkers on individual cells. These instruments must be maintained and calibrated to ensure data fidelity. Staff oversee use to minimize problems, allowing investigators to quickly and reliably separate or record cells for subsequent experimentation. The FCSR's locations in Davis and Sacramento provide convenient and centralized access to cytometry equipment and expertise to preserve the vitality of labeled cells.

The FCSR offers users the opportunity to receive formal, comprehensive training in flow cytometry technology, principles and best practices at its semi-annual week-long courses that explain cytometer engineering, breakdown experiment design, cover common problems and give users a working, practical knowledge of the FlowJo software. Cancer Center members have access to free course tuition scholarships on a competitive basis. The next online course will be on February 3-7, 2025.

For the *FlowJo Software Subscription service*, please contact the FCSR to get subsidized, future-proofed access to the powerful data analysis tools in this leading cytometry data analysis software. The FCSR also maintains and provides individualized training on its standard multi-color cytometers. FCSR staff are available daily to assist with cell sorting requests.

[Email FCSR](#)



Barbara Shacklett, PhD, Director

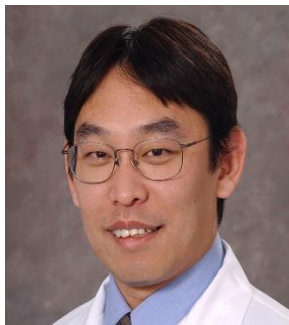


Bridget McLaughlin, MS, Technical Director

A list of the FCSR's equipment and locations is available on the [UC Davis Research Core Directory](#) and on the Cancer Center's FCSR webpage.

[Visit FCSR](#)

## Shared Resources Workshop - Dr Yoshihiro Izumiya's Presentation



The second Shared Resources Workshop was held on October 17 and featured **Yoshihiro Izumiya, DVM, PhD** from the Department of Dermatology. He spoke about his studies on ***KSHV epigenetic gene regulation and development of therapeutic approaches for KSHV-associated malignancies***. He also shared how his team prepared several innovative and impactful research tools using the Genomics (GSR) and Combinatorial Chemistry and Chemical Biology Shared Resources (CCCBSR).

A total of 23 attendees joined the hybrid session.

Dr. Izumiya detailed how KSHV poised chromatin during latent infection and how his team utilized this transcription repression mechanism to identify a peptide involved in the differentiation of cancer cells. He explained why viral-host coevolution is an exciting research topic and that understanding the basis of viral evolution was instrumental to uncovering the association of KSHV infection with highly inflammatory diseases.

Dr. Izumiya shared that support from Ryan Davis at GSR and Drs. Kit Lam and Ruiwu Liu from CCCBSR was instrumental to his research success. The GSR offered the latest spatial transcriptomics technology and the CCCBSR a unique and robust combinatorial library to get better results and expand his research. Attendees were taken through the entire research process with interesting analogies provided by Dr. Izumiya like '*Curing Cancer with Viral Wisdom*' and "*SRs providing customized service by going the extra mile as opposed to getting the exact service from a listed menu from an external provider*".



He stressed the importance of asking questions or consulting with the SRs prior to starting any projects to ensure the use of latest technology and appropriate analysis to achieve desired results. He concluded the presentation by saying " *You do not know what to ask? It is fine. I was the same.*"

Dr. Izumiya has offered to share his research results and collaborate with investigators interested in working with him.

[Email Dr. Izumiya](#)

If you have any questions regarding these workshops or require any SR-related information, please contact the SR Administrator.

[Email SR Admin](#)

## Genomics Shared Resource

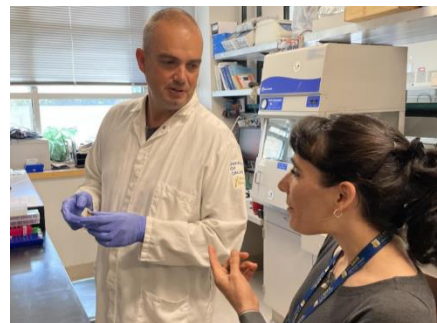
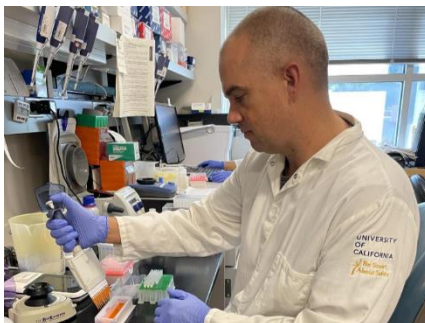
The Genomics Shared Resource (GSR) provides DNA, RNA, next-generation sequencing, and bioinformatics services to the UC Davis Health System and beyond. The mission of the GSR is to serve the UC Davis Comprehensive Cancer Center by providing centralized, cost-effective, and comprehensive expertise and service in the broad area of genomics research. This includes virtually all types of genome-wide profiling, including transcriptome profiling (RNA-Seq, small RNA-Seq, SLAM-Seq), epigenomics (ChIP-Seq, CUT&RUN, Hi-C), variant/mutation analyses (whole-exome and genome sequencing), single-cell sequencing, and spatial transcriptomics.

The GSR specializes in helping investigators develop, implement, and troubleshoot custom and novel genomics applications. It also provides extensive data analysis and integrative bioinformatics support as well as a variety of educational opportunities.

The GSR facility is managed by **Dr. John McPherson** (Director), **Ryan Davis** (Genomics Specialist) and **Stephanie Liu** (Manager).

GSR services include:

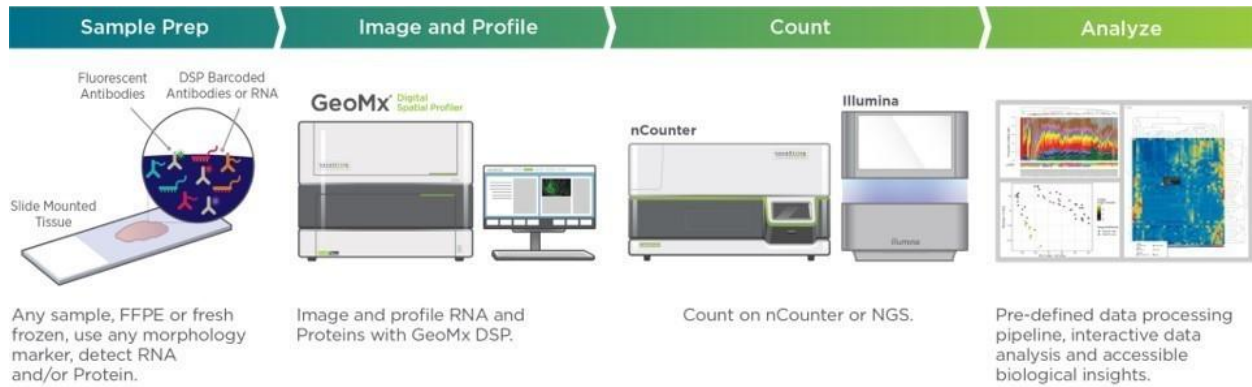
- Next-generation Sequencing
- RNA-Seq: stranded mRNA-Seq, Total RNA-Seq, QuantSeq 3' mRNA-Seq, SLAM-Seq
- DNA-Seq: WGS, WES, targeted panels
- Epigenomics: CUT&RUN, ChIP-Seq, Hi-C
- Metagenomics: 16S rRNA gene, viral
- Single-cell sequencing – 10x Genomics
- Spatial transcriptomics: NanoString GeoMx DSP, 10x Genomics Visium
- Ancillary Genomics Services
- DNA/RNA isolation, QC, DNA shearing, qPCR
- Non-CLIA/CAP clinical research support
- Custom protocol and LDT development
- Data Analysis and Bioinformatics
- Comprehensive NGS analysis packages
- Illumina DRAGEN Bio-IT Platform
- Consultation – experimental design, planning
- Educational Opportunities
- Monthly Genomics Pop-in Workshops
- Mentorship, one-on-one-training, seminars



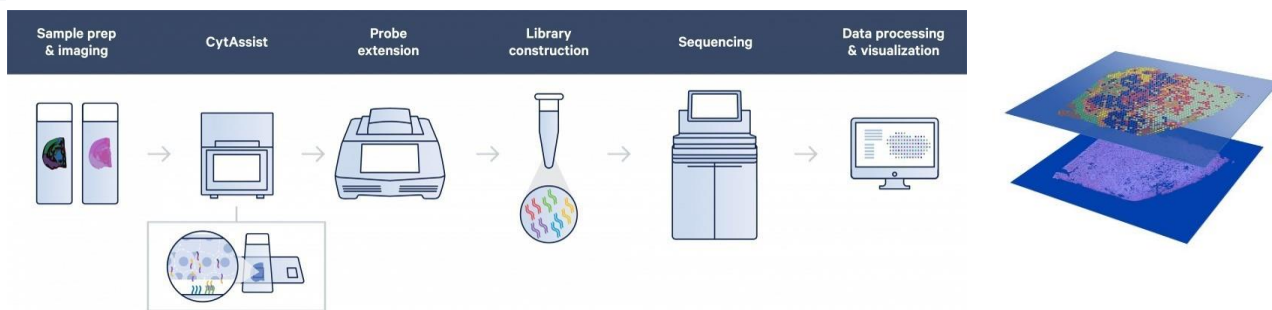
Ryan Davis pipetting multiple stains.

Stephanie Liu demonstrating the KingFisher Apex Automated Extraction System.

Ryan Davis showing Rachel Rivas staining techniques.



Spatial transcriptomics using the GeoMx Digital Spatial Profiler.



Spatial transcriptomics using the 10X Visium spatial gene expression.

The full list of GSR's services and recharge rates can be found in PPMS. Please note that rates charged to Cancer Center members are subsidized for cancer-related research. For assistance, request GSR Services by clicking the button below (PPMS Access Required):

[GSR PPMS Access](#)



GSR's last pop-in workshop for the year was held on Wednesday, October 25. This session was about navigating PPMS. Stephanie Liu guided the attendees through creating an account and placing an order or reserving an equipment using PPMS. The session was recorded and will be available on the GSR website soon.

The GSR's primary research lab and office spaces are located in [Research Building III, Room 2400](#), 4645 2nd Avenue, Sacramento, CA 95817. GSR hours of operation are 9.00 a.m. - 6.00 p.m. weekdays. They are also available 24/7 via email or telephone. If you have any questions or want to be added to GSR's email list, please contact them by clicking the button below:

[Email GSR](#)

## Staff Spotlight



**Stephani Leber** is a member of the Research Core Facilities Program (RCFP) team housed within the Office of Research. She is the Implementation Lead for the campus approved system, Stratocore PPMS; a web-based management software used to assist the operations of core facilities, shared resources, and recharge units.

Prior to working at UC Davis, Stephani was a Supply Chain Manager for a cutting-edge water treatment company – helping to remove hexavalent chromium from drinking water with near-zero waste.

With changes to California water regulations, Stephani moved on and started her career with UCD at the Genome Center. During her time there, Stephani assisted their six core facilities and many faculty with purchasing, billing, and travel. She was a part of the Stratocore PPMS working group that helped pilot the software. With her contributions to the working group, Stephani was encouraged to apply for the Implementation Lead role for Stratocore PPMS and has been in the position since 2020.

In her role, Stephani has assisted roughly 40 facilities and counting with transitioning to Stratocore PPMS, including the Cancer Center Shared Resources. In addition to helping facilities become established in PPMS, she provides continuous administrative support, billing and integration oversight, database management, and runs a full-time helpdesk for administrators and customers.

Outside of work, Stephani has recently purchased her first home with her husband in Sonoma County. In her free time, she can be found working on house projects, spending time with family, and raising her two puppies, Sundae and Pippa.



You can email [Stephani](#) with any questions or visit <https://ppms.ucdavis.edu> to learn more about Stratocore PPMS.

[Email Stephani](#)

## Upcoming Events and Office Hours

### EXPLORER Pilot Program Grants – Application Due November 1

The UC Davis School of Medicine, the EXPLORER Molecular Imaging Center (EMIC) and the UC Davis Comprehensive Cancer Center are inviting new pilot project applications for projects that will utilize the EXPLORER total-body PET/CT scanner. Applications with collaborative research between clinical, translational and basic

biomedical researchers are highly encouraged. Competitive projects will be innovative, will have a potential for high impact and will provide crucial preliminary data for new extramural grant applications. Proposals must include human subjects research using the EXPLORER total-body PET/CT scanner.

Four projects will be funded with awards in the range of \$50,000 to \$75,000 each. Awards will be for a 12-month period beginning February 2025 to support scanning and radiotracer costs, purchase of supplies and other research-related expenses, staff and/or graduate student salaries and expenses related to extramural grant submissions. Funds may not be used to purchase equipment or for the corresponding PI and other faculty salaries (salary support for project scientists, specialists, postdoctoral fellows, etc. is permitted). Topics of research are at the discretion of the PI and team, but two of the awards will be cancer related.

### Eligibility

School of Medicine faculty and their collaborators. Multiple Principal Investigator (MPI) proposals are allowed. The Contact Principal Investigator must be a faculty member in the School of Medicine. Faculty may participate in multiple project applications.

### Submission Details

All proposals must be sent electronically as ONE single PDF file to UC Davis Internally Coordinated Programs powered by InfoReady using the following button:

[Apply here](#)

## Shared Resources and LLNL Seminar - November 20

Join the UC Davis Comprehensive Cancer Center Shared Resources and Lawrence Livermore National Laboratory-led seminar to learn how Cancer Center members can access the LLNL National User Resource for Biological Accelerator Mass Spectrometry (bioAMS).

Procedures for accessing the NIH-funded User Resource for bioAMS and receiving free measurements will be described. The event features a one-hour seminar with lunch (for those attending in-person) followed by breakout sessions for additional discussions.

### Featured Speakers

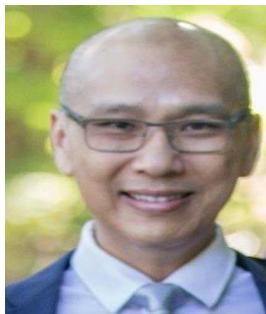
**Bruce Buchholz, PhD**



#### **Topic: Biological Accelerator Mass Spectrometry (BioAMS)**

Dr. Bruce Buchholz is a senior scientist at the Center for Accelerator Mass Spectrometry at LLNL and the Project Manager for the NIH User Resource for BioAMS. For the past 25 years he has designed and conducted <sup>14</sup>C-tracer biological AMS studies with collaborators around the world in the fields of nutrition, environmental toxicology, cancer biology, pesticide ADME, and cell biology. His academic training is in physics, and he holds a PhD in Nuclear Engineering from the University of Illinois. Before joining LLNL, he completed postdocs at Argonne National Laboratory in nuclear-chemical engineering and at UC Davis in pesticide ADME in the Department of Entomology. He has authored more than 100 peer-reviewed publications on the use of isotopic tracers in biology, combustion systems, and chemical engineering.

**Long Phan Nguyen, PhD**



## **Topic: Inhaled Therapeutic Development in Oncology**

Dr. Long P. Nyugen is a researcher at LLNL. He is a pharmacologist with aerosol development expertise with emphasis on the inhaled delivery applications into the airway and distal lung space, or delivery to nasal cavity. He is responsible for building internal pulmonary capabilities to include establishing preclinical inhalation facilities and the analysis of aerosol particle deposition, characterization, and localization in various lobes and cell types of the respiratory tract and nasal cavity; with the goal to elucidate mechanistic understanding of the immune response to the aerosol exposures, identify biomarkers, and drug target validation. Dr. Nguyen has led early-stage programs through clinical candidate selection of multiple therapeutic modalities. He has also contributed to the development of the drugs that reached clinical trial that targets Type 2 and 17 pulmonary inflammation, various muco-obstructive diseases, fibrosis, oncology, and the reduction of pulmonary infection rate, progression, and severity to SARS-CoV-2 and other infectious disease.

### **Event details:**

**When: 12.30 – 1.30 p.m. November 20, 2024**

**Where:** James E. Goodnight Auditorium, Comprehensive Cancer Center, 2279 45th St, Sacramento, CA 95817

**How:** Hybrid (In-person and via Zoom)

Dr. Buchholz and Dr. Nguyen will be available after the seminar to have discussions with researchers on services available for their projects.

**Breakout sessions will be available from 1.30 – 4.30 p.m.**

Registration is required.

[Register here](#)

## **Shared Resources Workshop Series 2024-25**

The Shared Resources provide the UC Davis research community with centralized access to specialized scientific expertise, consultation and assistance, infrastructure, and equipment necessary to conduct cutting-edge scientific research.

Want to know how to incorporate SRs into your research? This year's workshop series will feature faculty who have used one or more SRs for their cancer research projects.

[Register today](#) to learn from Cancer Center members who will share their unique experiences.

This series will equip you with ways to take full advantage of SRs services and equipment in your research and publications and how to learn strategies for using SRs. As a Cancer Center member conducting cancer research, you are eligible for prioritized status and subsidized rates when using the SRs! Register now and hear what our SRs "super users" have to say!

Join us at one or more of the workshops scheduled below and learn how SRs can add value to your research:

**Dr. Aiming Yu and Dr. Hongwu Chen - December 19, 1 - 2 p.m.**

**Dr. Joseph Tuscano - January 16, 2025, 3 - 4 p.m.**

**Dr. Shuchi Gulati - February 20, 2025, 1 - 2 p.m.**

[Register and Learn More](#)

# Biostatistics Shared Resource 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, the BSR offers weekly office hours in collaboration with the Clinical and Translational Science Center:

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

Tuesdays, 12 - 2 p.m.

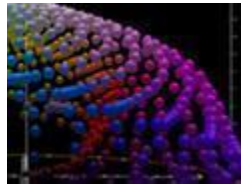
For more information, contact [Dr. Lihong Qi](#).

[Schedule an appointment](#)

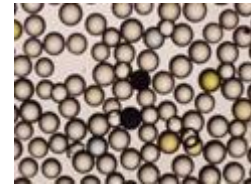
## Explore all the Shared Resources



[Biorepository  
\(BSR\)](#)



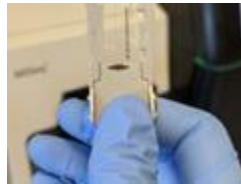
[Biostatistics  
\(BSR\)](#)



[Combinatorial Chemistry and  
Chemical Biology \(CCCBSR\)](#)



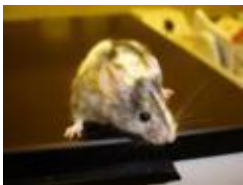
[Flow Cytometry  
\(FCSR\)](#)



[Genomics  
\(GSR\)](#)



[In vivo Translational Imaging  
\(IVTISR\)](#)



[Mouse Biology  
\(MRSR\)](#)



[Molecular Pharmacology  
\(MPSR\)](#)



[Immune Modeling, Analysis,  
and Diagnostics  
\(IMADSR\)](#)



## 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 public access policy](#)

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