ROGEL CANCER CENTER
UNIVERSITY OF MICHIGAN HEALTH

Instrumental

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A Message from Dr. Keller

Dear Rogel Cancer Center Members,

We are excited to bring you a new edition of Instrumental to keep you informed on the latest developments within our Shared Resources including an upcoming open house, an introduction to new SR staff, and a new SR leadership opportunity.

We recently concluded our annual SR survey and have selected the winners of our Zingerman's raffle (see below in News & Updates). We congratulate those winners and express our gratitude to each member who offered feedback. Member responses remain the most valuable tool in helping us to plan for the future of our Shared Resources. If you weren't able to reply to the survey, please be reminded that you are welcome reach out to me directly or through our website to provide your feedback at any time.

Evan T. Keller, D.V.M., Ph.D.
Associate Director for Shared Resources
Rogel Cancer Center

SERVICE SPOTLIGHT

The Transgenic Animal Models Shared Resource (TAM-SR), located on the C-Floor of Medical Sciences Research Building II (MRSB-II), provides specialized equipment and expertise in transgenic technology and genome engineering to Rogel members. Having produced over 20,000 transgenic mice and rats since its establishment in 1989, the SR has validated methods that allow for guaranteed production of at least three transgenic founder mice or rats per transgene DNA construct.

TAM-SR also offers training in the principles of genome engineering, CRISPR/Cas9 technology, mouse embryonic stem (ES) cell technology, and technical bench-level microinjection. Training is coupled with access to lab space and equipment, allowing users to work side-by-side with TAM-SR staff to produce genetically modified mice, rats, and mouse ES cell lines that can be used to increase our understanding of gene function in cancer.

RESEARCH SPOTLIGHT

Metabolic-associated fatty liver disease – the accumulation of fat in liver cells – can progress to metabolic dysfunction-associated steatohepatitis (MASH) [formerly called nonalcoholic steatohepatitis (NASH)] which is characterized by liver injury, inflammation, and fibrosis. Progression to MASH increases the risk of developing end-stage liver disease including cirrhosis and hepatocellular carcinoma.

In a recent publication, the laboratory of **Jiandie Lin, Ph.D.** investigated the mechanism for which induction of triggering receptor expressed on myeloid cells 2 (TREM2+) NASH-associated macrophages (NAMs) contributes to MASH pathogenesis. Researchers identified membrane-spanning 4-domains a7 (MS4A7) as a NAM-specific pathogenic factor

and utilized the CRISPR/Cas9 services in the Transgenic Animal Models Shared Resource to create a knockout mouse allowing them to investigate the pathophysiological role of this factor in MASH. The work revealed MS4A7s role in activating the NLRP3 inflammasome and driving MASH progression.

Authors also credit the use of the following Rogel Shared Resources: Flow Cytometry for cell sorting and analysis, Immune Monitoring for ELISA assays, and Single Cell Spatial Analysis for single cell RNA-seq

NEWS & UPDATES

Rogel Seeks Assistant Director for Shared Resources

Rogel is seeking an Assistant Director for Shared Resources to provide leadership for Rogel initiatives that further enhance the utility, value, innovation, and impact of our shared resources. The Assistant Director for Shared Resources will work under the direction of the Associate Director for Shared Resources. The role is expected to require 5% effort commitment.

Cancer Data Science Welcomes Program Manager

The Cancer Data Science Shared Resource (CDS-SR) is happy to welcome Program Manager **Erik Roys** to the SR staff. Erik has a master's degree in clinical research design and statistical analysis from the University of Michigan School of Public Health. He has been involved in statistical analysis and reporting related to the evaluation of healthcare providers throughout his career.

Hughes Retires

Interim Managing Director of the Transgenic Animal Models Shared Resource, **Elizabeth Hughes**, celebrated her retirement on April 26, 2024. We wish Elizabeth a happy retirement and thank her for her more than 20 years of dedicated service.

Rogel SR Survey Raffle Winners

Thank you to everyone that took the time to reply to our recent Rogel Shared Resource Survey. Your thoughtful responses provide the information we need to make decisions on future investments and help us to understand the things we are doing well and the opportunities we have for improvement.

Four raffle winners were selected from the pool of 116 respondents. Congratulations to the following Rogel members who will receive a $30 Zingerman's gift card:

- Jiandie Lin (STME)
- Antonio Morales-Hernandez (CHI)
- Susan Pitt (CCPS)
- Arvind Rao (TACR)

Cell and Tissue Imaging offers new technologies, NCRC Open House, and EM Summer Series

The Cell and Tissue Imaging Shared Resource (CTI-SR), a.k.a. BRCF Microscopy Core, recently upgraded its lab space at the North Campus Research Complex (NCRC) making it suitable for handling BSL2 samples. The location, which will be staffed approximately 20 hours per week, now includes:

- A tissue culture room containing a sink, incubator, hood, refrigerator/freezer, and a biosafety cabinet

- Image analysis computers, including an Imaris workstation
- Nikon Yokogawa CSU-W1SoRa spinning disk confocal microscope
- Nikon A1Si laser scanning confocal microscope

CTI-SR will host an open house on **Thursday, August 8** to showcase the renovation and expanded services. Please join us for the following:

OPEN HOUSE – SCHEDULED EVENTS

- 1:30 – 2 p.m. - Building 20, Room 53S - brief welcome and ribbon cutting
- 2 – 3 p.m. - Building 10, Rooms G063/G064 – Discussion of available Nikon technologies - presented by Nikon Instruments.
- 3 – 5 p.m. - Facility tours and instrument demonstrations

Interested in learning more about 3D electron microscopy (EM) and other advanced methods?

The CTI-SR is starting an Advanced Biological EM Methods Interest Group for U-M scientists with diverse research interests to have the opportunity to interact and learn from one another. This group will also help SR leadership to gauge interest on the development of new services. We will begin with a series of three introductory talks by Jing Liang, Ph.D., Senior Electron Microscopy Scientist. These talks will be presented in a hybrid format on July 10, 17, and 24, from 3:00 – 4:00 pm with the in-person portion at the Biomedical Science Research Building (BSRB), room 2515.

For additional information on CTI-SR events, training, consultations, or other happenings, please contact Managing Director, **Jennifer Peters, Ph.D.**

CDS MEET THE EXPERT

Chamila Perera, Ph.D.
Statistician Senior, Biostatistics Department

What is your area of expertise?
Machine learning, high dimensional data analysis, precision medicine

What types of analyses do you run most frequently?
Survival and longitudinal data analysis, predictive modeling, variable selection

What do you like best about working in the SR?
Collaborating with talented researchers and clinicians from diverse backgrounds allows me to gain new insights and approaches to solving problems in cancer data analysis.

What is your favorite place in Ann Arbor?
Island Park, Briarwood Mall