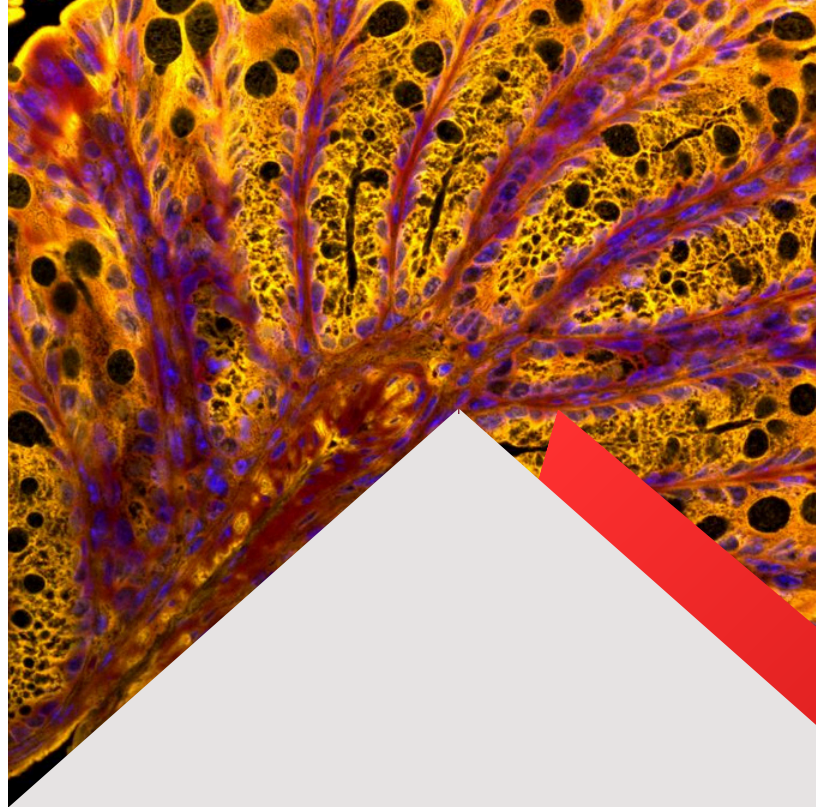
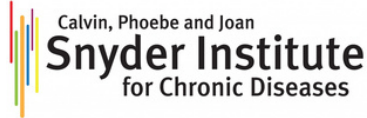


Live Cell Imaging Lab



Overview

The LCI is a community-driven shared technology platform. We leverage imaging and rapid prototyping to drive research and to translate new knowledge for societal benefit.

Researchers in our community have access to:

- Advanced imaging technology
- Assisted imaging and coaching at every step of the imaging workflow, from sample preparation to data analysis
- Pilot experiments and feasibility testing
- Image analysis consultation and training
- Development of custom image analysis pipelines
- Developing and testing new instruments and devices
- Full scientific and technological collaborations and partnerships
- Offsite coaching, assistance and consulting available
- Collaborative projects in the academic, health and allied industrial sectors
- External partnerships and contracts welcome

Values

LCI stands for Live Cell Imaging, but also for our values:

- **Learn.** Continuous and engaged learning is at the heart of everything we do
- **Connect.** We believe connecting diverse people sparks new ideas and drives discovery
- **Innovate.** Our creativity and dedication keeps us at the cutting edge of research and technology

Select Publications

Protease-activated receptor 2 drives migration in a colon cancer cell line but not in noncancerous human epithelial cells. Périco LL. et al., *Physiol Gastrointest Liver Physiol*. 2024

A biologist's guide to planning and performing quantitative bioimaging experiments. Senft RA. et al., *PLoS Biol*. 2023

IgGfC-binding protein and MUC2 mucin produced by colonic goblet-like cells spatially interact non-covalently and regulate wound healing. Gorman H. et al., *Front Immunol*. 2023

Intestinal distension orchestrates neuronal activity in the enteric nervous system of adult mice. Cavin JB. et al., *J Physiol*. 2023

Tissue imaging reveals disruption of epithelial mitochondrial networks and loss of mitochondria-associated cytochrome-C in inflamed human and murine colon. Chojnacki AK. et al., *Mitochondrion*. 2023

Membrane procoagulation and Nterminomics/TAILS profiling in Montreal platelet syndrome kindred with VWF p.V1316M mutation. Agbani EO. et al., *Commun Med (Lond)*. 2023

Fluorescence Microscopy: A Field Guide for Biologists. Swift LH, Colarusso P. *Methods Mol Biol*. 2022

Feasibility of three-dimensional facial imaging and printing for producing customised nasal masks for continuous positive airway pressure. Duong K. et al., *ERJ Open Res*. 2021



More
Publications

Website



Live Cell Imaging Lab



UNIVERSITY OF
CALGARY

Calvin, Phoebe and Joan
Snyder Institute
for Chronic Diseases



Team

We are a team of scientists that solves problems for life science researchers

Pina Colarusso, PhD

Pina leads an interdisciplinary team that supports researchers in the area of optical microscopy and image analysis. Her expertise focuses on live-cell imaging; a recent focus is the imaging of mitochondrial function. Pina is also dedicated to improving access to imaging technologies. This includes developing devices, and workflows that are accessible and practical to the average biologist. Pina has lead the development of a comprehensive educational program that emphasizes learner-centered and experiential opportunities. Pina has also collaborated with colleagues across Canada to offer local workshops, online education and training, and national events.

Craig Brideau, PhD, MASc

Craig is a Biomedical and Electrical Engineer with over 20 years of experience in laboratory equipment design and automation. He has published on topics ranging from Coherent Anti-Stokes Raman Scattering microscopy to custom 3D printing for microscopy applications. Craig is a contributor to the international QUAREP-LIMI protocol for reproducibility in microscopic imaging and, with Pina, assisted with the development of an internationally recognized optical power measurement device for microscopy applications.

Dylan Greening, BSc

Dylan is an Optical Imaging Specialist in the LCI. Dylan supports researchers in every step of the workflow, and provides training and support by consulting on the best practices in immunofluorescence, to applying advanced learning approaches to image analysis. Prior to joining the LCI team, Dylan was a Optical Imaging Specialist in Dr. Ray Turner's Lab in the Hotchkiss Brain Institute, where he applied superresolution microscopy to decoding the ultrastructure neuronal cells.

Maria Polyak, PhD, MSc

Maria is a Research Scientist in the LCI. Maria develops biological models for imaging applications. Her previous research experience includes the characterization of known therapeutic protein targets (CD20) and in the identification of putative biomarkers or drug targets (MS4A4A, USP15). The results from these studies have been published in journals including *Blood*, *Leukemia*, and *Nature Immunology*.

Nicholas Pittner, MBT, BSc

Nicholas is the Biomedical Technologist in the LCI. He designs prototypes and solves problems through computer-aided design, 3D printing, and programming. Using his skills in 3D printing and design, he aims to improve the workflow of researchers while helping researchers and businesses transform their ideas into functional prototypes and products.

Contacts

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Nicholas Pittner

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Technology and Applications

Imaging Technology

- Wide-field, confocal microscopy
- Multiphoton imaging including fluorescence and second harmonic generation
- Superresolution microscopy- stimulated emission depletion (STED) & single molecule localization microscopy (SMLM)
- Colour imaging for histology and polarized light microscopy
- White-light stereoscopic imaging
- Image analysis software (Imaris, Volocity, & ImageJ)

Imaging Applications:

- Live-cell imaging including imaging under flow conditions
- Fluorescence imaging
- Intravital microscopy
- Organoid imaging
- Tissue imaging
- Cell-based assays (multiple plates over hours to days)
- Spectral imaging such as for autofluorescence
- Chemotaxis, angiogenesis, wound healing
- Multi-color, 3D reconstruction and high-speed time-lapse
- Custom image analysis pipelines such as particle tracking, morphological measurements

Prototyping Technology

- Fused deposition modeling (FDM), stereolithography (SLA)
- Silicone casting
- Wide range of materials (PLA, PETG, ASA, ABS, PC etc)

Prototyping Applications:

- Prototyping and design services for 3D printing (FDM, SLA)
- Rapid prints with PLA materials
- 3D printing patient-parts for clinical trials
- Creation of surgical/laboratory instruments and medical devices
- Silicone & urethane molding