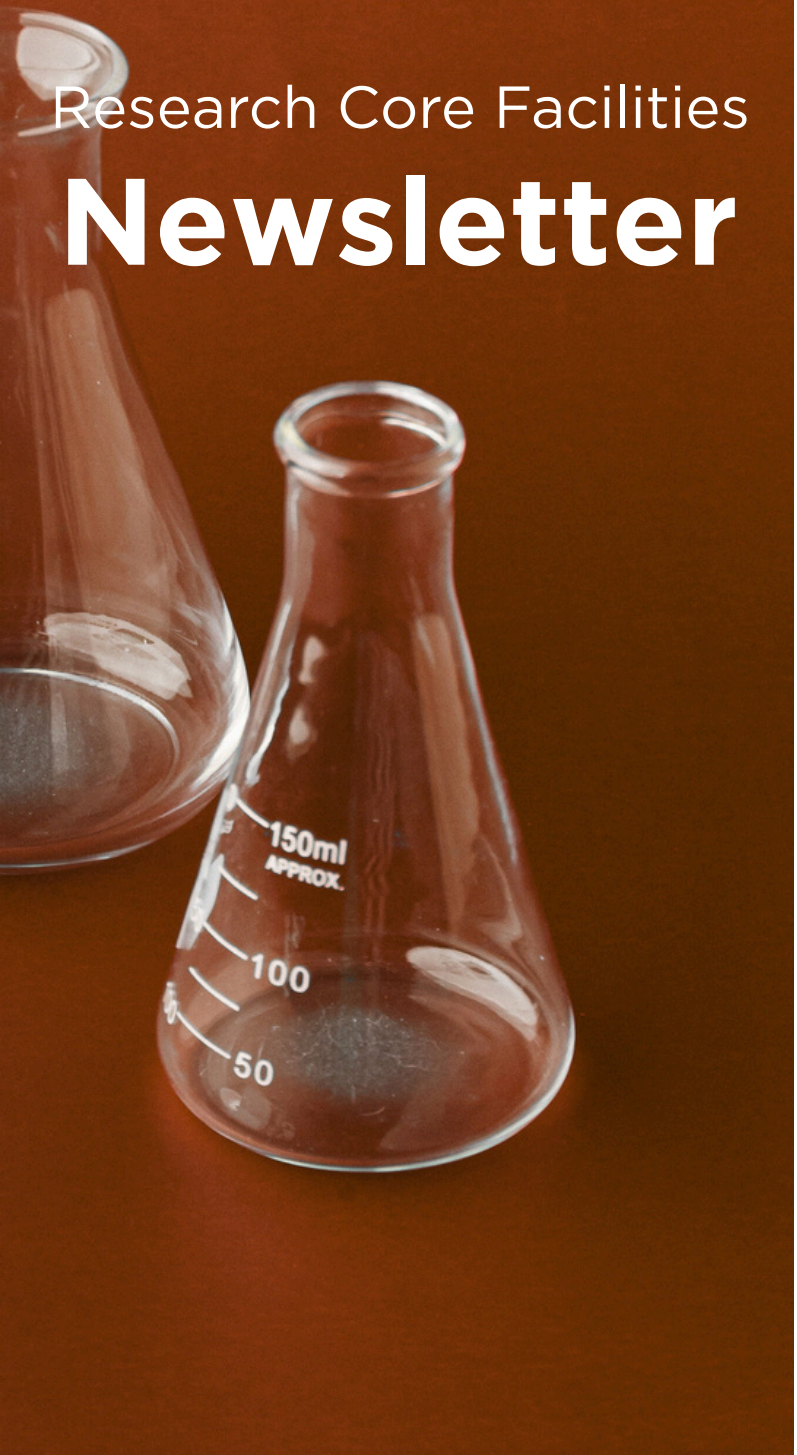
Sept 2025

Research Core Facilities

Newsletter

RCF



News & Announcements

Upcoming Events

Genomics Sequencers

Automated Western Blot

Flow Cytometry Mosaic Module

LiCor Odyssey XF

Western Blot Overview

Bin the Bins!

GENOMICS CORE

FALL SEMINARS

Designed to help your lab get the most out of our technologies and services.
Field application specialists will be on-site.

SEPT **23**

UNLOCK THE POWER OF MULTIOMICS | LKSKI 216

ILLUMINA x RCF GENOMICS — **10 AM - 12 PM**

NEW Sequencing Capacity Launch

Made possible thanks to Dr. Dos Santos' CFI grant.

Discover the latest advancements in the Illumina suite of genomics solutions and explore how integrated multiomics approaches including single-cell analysis and transcriptomics are reshaping our understanding of biology.

REGISTER NOW >

SEPT **30**

qPCR DUAL TECHNICAL SEMINARS | LKSKI 216

THERMOFISHER X RCF GENOMICS — **10 AM - 12 PM**

Join us to deepen your expertise in real-time PCR and explore the latest advancements in molecular biology. Gain insights into the ABI instruments and on-site technologies, including TaqMan array cards.

REGISTER NOW >

OCT **28**

QX600 ddPCR LUNCH & LEARN | LKSKI 216

Bio-Rad X RCF GENOMICS — **12:30 PM - 2:30 PM**

This seminar will showcase Bio-Rad's Droplet Digital PCR system, workflow, and software. The event will spotlight the QX600 Droplet Digital PCR system for multiplexing, troubleshooting, and how it is utilized for its exceptional sensitivity and precision in detecting rare targets.

REGISTER NOW >

Space is limited.
View our upcoming events and register now!

NEW

NEXTSEQ 2000 & MiSEQ i100 SEQUENCING PLATFORMS

We are excited to announce the ***NEW*** in-house sequencing capacity improvement thanks to the acquisition of Illumina's Nextseq 2000 and Miseq i100 sequencing platforms. These units were funded through Dr. Dos Santos's CFI award and replace the NextSeq 550 system.

Both systems use the XLEAP-SBS chemistry, Illumina's fastest, most robust, highest-quality sequencing chemistry to date. In addition, predesigned DRAGEN pipelines onboard the sequencer will streamline data analysis while not running at full capacity, minimizing the need for external bioinformatics support.

Genomics Core enhanced sequencing capacity now spans from 5M to 1.8B single reads per run at maximum read length of 2 x 300bp, providing versatility for a wide range of experimental needs in a costly effective manner.

Contact the core specialist for sequencing service inquiries.

SOME OF THE SUPPORTED APPLICATIONS INCLUDE

- **Transcriptomics (including spatial!)**
- **Whole-exome sequencing**
- **16s microbiome studies**
- **miRNA sequencing**
- **ChIP-seq and ATACseq**
- **Methylation**
- **Pilot test for scRNAseq**
- **Panels for cancer gene expression, mutation and fusion detection**
- **Amplicon-based Multipathogen sequencing**
- **B-cell and/or T-cell receptor sequencing**
- **QC and balancing libraries**
- **Olink NGS panels (soluble protein detection)**

RCF

BIO-TECHNE
PROTEINSIMPLE

JESS

Jess is a fully automated, capillary-based Western blot system that performs immunoassays with high sensitivity, speed, and reproducibility. It streamlines the traditional workflow by automating protein separation, antibody incubation, detection, and analysis.

APPLICATIONS

• Automated electrophoresis and Western blotting: just 30 minutes of experimental setup in a well-plate format and 3 hours of hands-free run time
• Compatible with chemiluminescence and fluorescence (NIR/IR) detection even in the same capillary.
• Picogram-level sensitivity is possible with only 3 µL/well sample volume required
• Total protein detection available in a separate channel
• Formats: 13 and 25 sample capillary cartridges

WHERE CAN I FIND JESS?

Floor	Room	Model	Uses
6	654	Jess	Fluorescent and chemiluminescent DNA gels Protein gels

QUESTIONS?

M Teresa Ciudad (MTeresa.Ciudad@unityhealth.to)
Dario Bogojevic (Dario.Bogojevic@unityhealth.to)

CLICK HERE TO REGISTER FOR JESS TUTORIALS

BOOK EQUIPMENT | SIMPLE WESTERN ASSAYS | JESS SOP

RCF

BECKMAN COULTER MOSAIC MODULE

We are launching a new initiative in the Flow Core to evaluate the Beckman Coulter Mosaic Module upgrade for our CytoFLEX LX Cytometer!

PLEASE FILL OUT THIS SURVEY!

WHAT IT ENTAILS

The module will be connected with fiber optic cables to our base instrument, including a software upgrade.

BENEFITS

The Mosaic Module enhances flow cytometry capabilities by enabling high-parameter, high-throughput sample analysis with improved sensitivity and flexibility. Meaning it will allow us to still use the CytoFlex as a conventional cytometer (current configuration) or have the option of utilizing it as a spectral cytometer (Ie. Sony SP6800) = cleaner signals, more flexibility in choosing your fluorochromes.

LENGTH OF EVALUATION

This evaluation will allow users to test the equipment on-site before any purchase commitment, with Beckman Coulter conducting limited demonstrations during low-use hours.

EXPECTED INSTALLATION

Fall 2025

INTERESTED IN MORE INFORMATION?

BECKMAN COULTER MOSAIC MODULE

RCF

LICORBIO ODYSSEY XF

We are pleased to announce the addition of the LICORbio Odyssey XF imaging system!

Room 654
Analytical Lab
6th Floor

This instrument was funded through Dr. Dos Santos' CFI award

The Odyssey XF is a versatile, high-performance imaging system designed for:

- Fluorescent and chemiluminescent Western blots
- DNA gels
- Protein gels

It features dual near-infrared (NIR) lasers (700 and 800 nm), LED illumination, and a CCD camera with FieldBrite™ technology, enabling both NIR fluorescence and chemiluminescence detection in a single instrument. This system offers exceptional sensitivity and quantitative accuracy, making it ideal for multiplex detection of multiple targets on the same blot.

LICORbio will be conducting a remote training session:

Thursday, October 2, 2025
@ 10:00 AM on Microsoft Teams

Duration: 1-1.5 Hours

Meeting ID: 213 510 448 941 0
Passcode: tZ7TK7tY

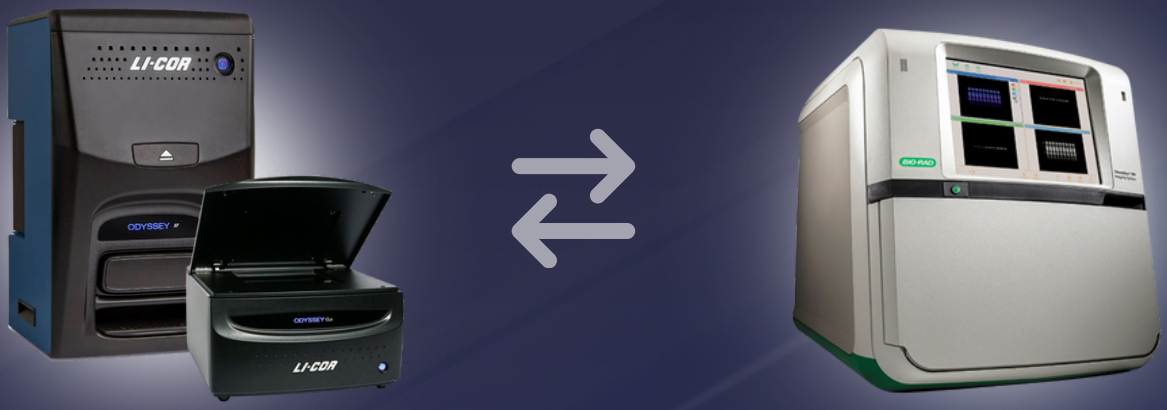
Includes:

- Odyssey XF Imager Overview - Usage & Care
- Best Western Blot Practices
- Empiria Studio Software and Quantitative Western Band Analysis
- Q&A

SHOP REAGENTS | **INSTRUMENT RESOURCES** | **BOOK EQUIPMENT**

RCF

WESTERN BLOT OVERVIEW



ODYSSEY VS CHEMIDOC - WHAT'S THE DIFFERENCE?

· **Odyssey** is best for fluorescent Western blots using near-infrared (NIR) dyes and multiplexing (detecting 2 targets on one blot).
· **ChemiDoc** is best for chemiluminescent Western blots (using HRP and ECL).

ODYSSEYS IN RCF:

Floor	Room	Model	Uses
5	549	Odyssey FC	Fluorescent and chemiluminescent DNA gels Protein gels
6	654	Odyssey XF	Fluorescent and chemiluminescent DNA gels Protein gels

SHOP REAGENTS | **INSTRUMENT RESOURCES** | **BOOK EQUIPMENT**

RCF

THERE ARE CURRENTLY FOUR CHEMIDOC IMAGING SYSTEMS AVAILABLE IN THE BUILDING, LOCATED AT THE FOLLOWING SITES:

Floor	Room	Medal	Features
4	458	ChemiDoc (Belong to Dr. Branch Lab)	Fluorescent Western blots (limited) Chemiluminescent Western blots Nucleic acid and protein gel stains Bio-Rad Stain-free gels
5 6	549 654	ChemiDoc MP	Fluorescence (Full RGB, far red, near infrared) Multiplex Chemiluminescent Western blots Nucleic acid and protein gel stains Bio-Rad Stain-free gels
6	654	ChemiDoc Touch	Chemiluminescent Western blots

RCF

BIN THE BINS

Did you know?

To maintain a clean environment, staff at the LKSKI will change bags even if there is a single item in the bin. This is practical as old garbage left out is unpleasant but...

That's a lot of plastic!

There are many, many bins within any given office space, and very few that reach maximum capacity throughout the week. Especially since many staff are hybrid or WFH.

Can we reduce that amount?

Less bins. More sense.

Help us help the environment

Let's Bin the Bins on

OCT 20th

More details to follow...

RESEARCH FACILITIES

Our Structure

Research Facilities Department Structure

The Research Facilities unit supports research staff across the institution and operates under the direction of the Chief Operating Officer, Mani Kang. It is comprised of four key areas:

Space and Construction Projects

- Project Manager: April Murray — April.Murray@unityhealth.to

Biosafety

- Biosafety Officer: Neha Chauhan — Biosafety@unityhealth.to

Research Core Facilities (RCF)

- Manager: Caterina Di Ciano-Oliveira — cat.diciano@unityhealth.to

- For Access, Billing, Communications Project Administrator: Rachel Dimiskovska Rachel.Dimiskovska@unityhealth.to

For specific scientific applications, please contact the relevant specialist:

- Cell Culture – Neha Chauhan Neha.Chauhan@unityhealth.to
- Cytometry – Monika Lodyga Monika.Lodyga@unityhealth.to
- Genomics – Teresa Ciudad MTeresa.Ciudad@unityhealth.to
- Histology – Xiaogeng Lu Xiaofeng.Lu@unityhealth.to
- Imaging – Caterina Di Ciano-Oliveira cat.diciano@unityhealth.to
- Microfabrication – Dario Bogojevic Dario.Bogojevic@unityhealth.to

Vivarium

- Managed by: Melanie Gracias Melanie.Gracias@unityhealth.to

What We Do

The Research Facilities Department plays a vital role in supporting the scientific community at our institution by enabling safe, efficient, and cutting-edge research.

Reporting to the Chief Operating Officer, the department is structured around four key areas that together uphold the infrastructure, compliance, and services essential to research excellence:

- **Space and Construction Projects:** Planning, development, and allocation of research spaces, ensuring they are optimized for evolving scientific needs.

- **Biosafety:** Provides expert guidance and oversight to ensure compliance with national biosafety regulations and institutional policies, protecting both staff and research integrity.

- **Research Core Facilities (RCF):** Operates advanced shared platforms across disciplines such as cell culture, genomics, histology, imaging, microfabrication, and flow cytometry. These facilities are staffed by highly skilled specialists who provide expert consultation, training, and hands-on support for experiment planning and execution. Their deep knowledge of cutting-edge equipment enables researchers to produce high-quality, reliable data.

- **Vivarium:** Manages the care, housing, procurement, and welfare of research animals while ensuring ethical standards and regulatory compliance are maintained.

Together, these teams deliver foundational support, technical services, and regulatory leadership that enable wet bench researchers throughout the institution to focus on innovation and discovery.