

Newsletter

Genomics



DID YOU KNOW?

It is best practice **NOT** to have a thermocycler run overnight at 4 degrees. It puts unnecessary wear and tear on the Peltier block that cools the unit (causing the machines to fail). Please ensure you remove your samples immediately after your runs are finished.

“Introduction to ddPCR” will be running in May. It will focus on an introduction to droplet digital technology, how it differs from (real time) qPCR, when it should be used instead of qPCR and applications (with a focus on its utility in miRNA profiling and CRISPR screening). Subsequent hands on core clinics (doing actual runs comparing results with qPCR), will be run depending on demand.

Flow Cytometry

Procured through Dr. Advani’s CFI, the CytoFLEX-LX system is now part of our core! It is a milestone; we have a 5-laser instrument on-site! Our package includes 19 Fluorescent and 2 Scatter detectors. More information is available [here](#).

System Highlights:

- ✓ **Plate loader** - 96 well plates
- ✓ **Exosome/Nanoparticle detection** - one of the highest resolution capabilities in the field
- ✓ **Compensation flexibility**

May is **CytoFlex LX user training month!** Please contact Monika directly to set up a session. All training requests made in the month of May will be eligible for a **gift certificate draw** to the Eaton Centre.

Pre-Clinical Imaging

The Newton 7.0 animal imager is up and running! The system is capable of bioluminescence and fluorescence imaging of small animals and tissues.

Key Features:

- ✓ In vivo imaging of up to 5 mice
- ✓ Resolution of 108µm pixel size for full 20x20 field of view with no camera binning
- ✓ Bioluminescence mode to detect luciferase expressing or secreting molecules (high sensitivity)
- ✓ Fluorescence mode can be used to detect fluorescent reported genes or dyes (multicolour imaging)
- ✓ Common applications include monitoring of tumor growth, drug delivery, and cell therapy delivery



What's New



Need to thaw your -80 freezer?

You can now book a -80 freezer for up to one week to temporarily store your reagents while thawing your freezer. After booking, please see Emma at the RCF front desk to obtain access to the basement storage area.

QuantStudio 7

After several concerning disturbances with the QuantStudio7 #2, it is now running optimally. We have replaced the mother board and have moved the unit to an emergency backup power supply in the event of any power disturbances during runs. The machine has been fully re-calibrated and over 10 test plates have been run successfully, so please feel free to book this machine confidently as a viable option to the QS #1.

Pre-Clinical Imaging Survey

We are hoping to gather some information about the potential usage for the equipment associated with the Pre-Clinical Imaging Core. The link to the survey can be found [here](#).

Need to centrifuge your samples at high speed?

Log into RFBMS, complete the online training module, and contact core specialist Colleen Ding to receive hands-on training. A PIN will be provided to obtain access to ultra/high speed centrifuge.

Change in Chemical Waste Disposal Guidelines

Hazardous waste stickers are available in Room 545. Remember to stick them on the waste bottle as soon as you start collecting the waste. For more details, please refer [here](#). If you have any questions/concerns, please email Neha Chauhan, Biosafety Officer.

More Space in Histology Core

The Histology core is getting a second room on the 6th floor to provide more space for users and facilitate a healthy environment. Stay tuned for more information!

Interested in exosome/nanoparticle analysis?

Salima Anastakis, application Scientist from Beckman Coulter Life Sciences will be available for a one day training event in June (TBA). Please contact core specialist Monika Lodyga if you are interested in participating.

Light Microscopy

Network Attached Storage:

The imaging facility has a Network Attached Storage device connected to all imaging PCs and workstations. This NAS was implemented to allow for seamless transfer of data from acquisition PC to analysis workstation. Instructions on how to access it are on imaging PC desktops as well as posted [here](#).



Equipment Update:

After over 13 years of service, our good old LSM700 will be replaced with a new [Zeiss LSM 900 with Airyscan!](#) Stay tuned for a seminar on the new system as well as opportunities to sign up for training sessions. Once everyone is transitioned to the new system, the LSM700 will be repurposed to a wide field system with deconvolution.



A very important reminder to turn off all equipment when you are done. You can check the RFBMS right before your imaging session has ended to see if there is anyone booked after you.

Histology

New Equipment in House:

Thanks to Dr. Advani's CFI funding, 4 new pieces of histology equipment have arrived:

1 EpreDia™ PrintMate™ AS 450 Cassette Printer



2 EpreDia™ SlideMate™ AS Slide Printer



3 Leica HistoCore Arcadia Embedding Center



4 Leica HistoCore BIOCUT Rotary Microtome



The cassette printer and slide printer produce high-quality labels to make every cassette and slide easy to read and track, enhancing operational efficiency and increasing specimen accuracy. The two-dimensional barcode label also facilitates cassette archiving and slide scanning.

Keep an eye out for further announcements regarding training sessions!

New Equipment Coming Soon:

- ACD Hybridization RNAscope System
- Cytospin 4 Cytocentrifuge
- TintoRetriever Pressure Cooker
- Paraffin Section Mounting Bath
- Paraffin Block Trimmer

Tissue Culture

Equipment Update:

The tissue culture facility has switched the water baths to bead baths! Beads have significant advantages including:



- ✓ **Reduced risk of contamination** - antimicrobial and non-evaporating
- ✓ **Baths stay organized** - no racks, floats, or weights needed
- ✓ **Easy to use** - can always stay on; no downtime
- ✓ **Hassle-free maintenance** - just spray with ethanol every Friday
- ✓ **Sustainable** - fully recyclable and uses 2x less energy

Tissue Culture Tip:

Don't become complacent. Stick to the basics and practice good aseptic techniques.

DID YOU KNOW?

The first modern medium was created more than 60 years ago.

Morgan et al., 1950.

Microfabrication

The Direct Write "Maskless" Lithography system [MicroWriter ML®3](#) is coming soon to the core! This system will allow users to make a photolithography mask for their projects or to use the system as a stand-alone "maskless" instrument for direct writing onto the photoresist substrates.

- ✓ Resolution of 0.6 μm across the 149 mm x 149 mm writing area
- ✓ Creation of multiple devices with submicron size features
- ✓ Process flow can be completed in our cleanroom
- ✓ Significantly reduces manufacturing lead times

Installation is scheduled for early May and user training will be available soon after that. Stay tuned for more updates.

Rapid Device Prototyping Room:

7th floor (Rm 772)



Our first piece of equipment installed is the [Muse Core CO2 Laser Cutter](#) for the precise cutting of acrylic, paper and fabrics. In addition to our [3D printer](#) located in the Biomedical Zone, this laser cutter increases our capacity for prototyping and small-batch devices productions, starting from virtual computer-aided design (CAD) models to resultant physical objects.