

# Newsletter

## Tissue Culture

### Maintaining the Biosafety Cabinets

To avoid cell culture contaminations, make sure that your biosafety cabinet is clean.

- ✓ Clean the surface, back wall, and front window sash with 70% ethanol before and after every use.
- ✓ Clean the aspirator tubing with 70% ethanol by aspirating ethanol a few times before and after use.
- ✓ Every few months, lift the bottom panel (working surface) and clean any visible spills with 70% ethanol. Pipette tips tend to collect here, and these can be a source of contamination.

### Coming Soon: Corning Cell Counters



*Frog nerve fibers were the first successfully cultured cells.*  
Ross Granville Hamison



## Histology

### New Equipment in House

- 1 ACD Hybridization RNAscope System
- 2 Cytospin 4 Cyto centrifuge
- 3 TintoRetriever Pressure Cooker
- 4 Paraffin Section Mounting Bath
- 5 Paraffin Block Trimmer
- 6 Leica HistoCore BIOCUT Rotary Microtome

All 6 pieces are currently in the process of installation. Please wait for further announcements regarding training sessions.

## Flow Cytometry

### CytoFlex Platform and Applications

#### Webinars

Characterization of extracellular vesicles using nanoscale flow cytometry.

- 1 *Dr. George Brittain (Research Scientist, Beckman Coulter) discusses the use of Violet Side-Scatter and how to use the CytoFLEX to analyze small particles.*

Single vesicle flow cytometry (vFC) of EV number, size and cargo.

- 2 *John Nolan (Professor, Scintillon Institute. CEO, Cellarcus Biosciences) talks about technical advances in single vesicle characterisation (number, size and cargo) by flow cytometry.*

Antibody titration using a CytoFLEX LX

- 3 *Darek Davis (Crick), Kathy Daniels (ISAC SRL Emerging Leader) and Rui Gardner (Sloan Kettering) discuss experimental set-up on the CytoFLEX LX and provide a walk-through antibody titration and acquisition.*

## What's New



### Looking for practical information on light microscopy?

Check out the [imaging facility website](#) for:

- Links to online learning and resources
- Imaging reagent information including where to purchase
- Fluorescent immunostaining theory and protocols

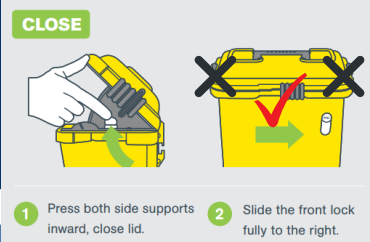
### CytoFlex LX training blitz

Congratulations to Kushal Joshi (from Scott Tsai's lab), the winner of the CytoFlex training sweepstakes. Missed out? Book a training anytime between September - Decemeber for another opportunity to win!

### Reusable sharps containers - Sharpsmart

Environmentally friendly sharps containers are now in use across the facility. Please remember to use only for sharps waste - no gloves, tissues, or tubes.

When full, slide the front lock only. Do not slide the side locks!



### New Equipment Coming Soon

We have gone through RFP and issued the POs for 2 major pieces of histology equipment: Leica ASP300S Fully Enclosed Tissue Processor and Leica Autistainer XL T5010. Stay tuned for more information.

### Reminders for Instrument Booking

- No longer need the booking? Cancel at least 30 minutes prior to the start time.
- Tardiness of more than 30 minutes will result in forfeiture of the reserved time.
- 2hr booking limit for peak hours:  
**9:00 am - 5:00 pm**
- To avoid booking the SONY SP6800 for analysis, please reach out for a Windows copy of the SP software.



Interested in Flow Cytometry but don't know how to get started?

Keep an eye out for upcoming seminars in September to learn more.

# Light Microscopy

## Equipment Update

- The new Zeiss LSM900 Airyscan with improved resolution is scheduled to arrive in early September. Stay tuned for an upcoming seminar as well as training information.
- Thanks to all who participated in the automated cell imager on-site demos. Plans to replace the ImageXpress are underway with a new system expected in early 2023.

**Important Reminder!**  
Be sure to save RAW data, processed data, and all settings used for image analysis to your own laboratory storage solution.

**Need an introduction to Fiji?**  
Check out this basics workshop.  
(<https://monashmicroimaging.github.io/gitbook-fiji-basics/>)

# Genomics

**An important reminder that if you are later than 15 minutes for the start of your 2 hour qPCR time slot, please do not start the run and instead, book yourself for the end of the day run (your plate can be kept in the dark at 4 degrees). This will avoid delays for the people using the machine after you.**

## Nanostring

The Nanostring has been used to successfully profile up to 800 mRNAs, miRNAs or DNA regions per sample using pre-designed or custom gene panels. Genes involved in immunity, neuropathology, cancer progression, cardiovascular disease (and more!) have been successfully profiled from whole blood (and exosomes), tissue, challenging FFPE samples and culture cells. To learn more about this highly sensitive method of gene profiling, please contact Genomics Core Specialist, Pamela Plant ([pamela.plant@unityhealth.to](mailto:pamela.plant@unityhealth.to)).



# Pre Clinical Imaging

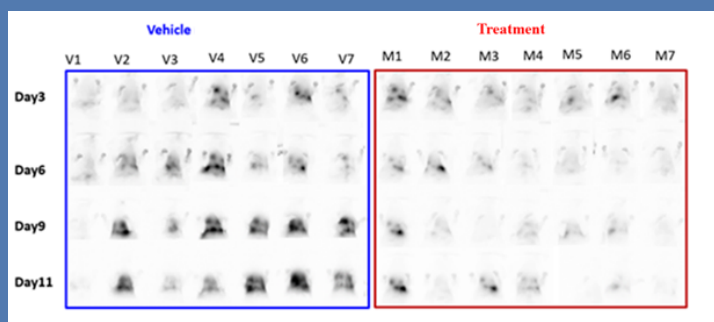
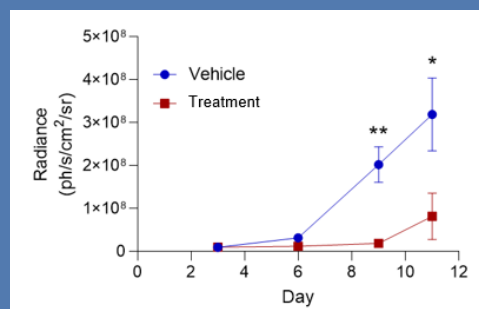
## Newton 7.0 Bioluminescence and Fluorescence Animal Imager



- ✓ High throughput capability with imaging of up to 5 mice at once
- ✓ Great for longitudinal studies
- ✓ Cancer imaging - including tumor size (growth) and markers

## Imaging Example

Orthotopically lung cancer model injected with luciferase-labelled lung cancer cells. 7 mice of each group were scanned longitudinally for 11 days.



Example presented by Dr. Kelsie Thu

# Microfabrication

The **Zetasizer Advance Series - Ultra (Red Label)** particle analysis instrument was installed successfully in the core and is ready for users! An essential tool used to characterize organic and inorganic nanoparticles, liposomes, protein therapeutic formulations, and nanobubbles, which are nanotechnologies often used in biomedical applications such as drug delivery, medical imaging, tissue engineering and regenerative medicine.

- ✓ High-resolution measurements for particle size range between 0.3 nm and 10  $\mu$ m
- ✓ Particle concentration measurements of absolute particle concentration, calibration free
- ✓ Reliable zeta measurements in high conductivity samples
- ✓ Repeatable and accurate measurements of protein electrophoretic mobility by minimizing aggregation risk at the electrodes during measurement
- ✓ Minimum sample volume 3  $\mu$ L

A seminar will be offered in September about the nanoparticle analysis equipment and techniques available. Stay tuned for more updates.

