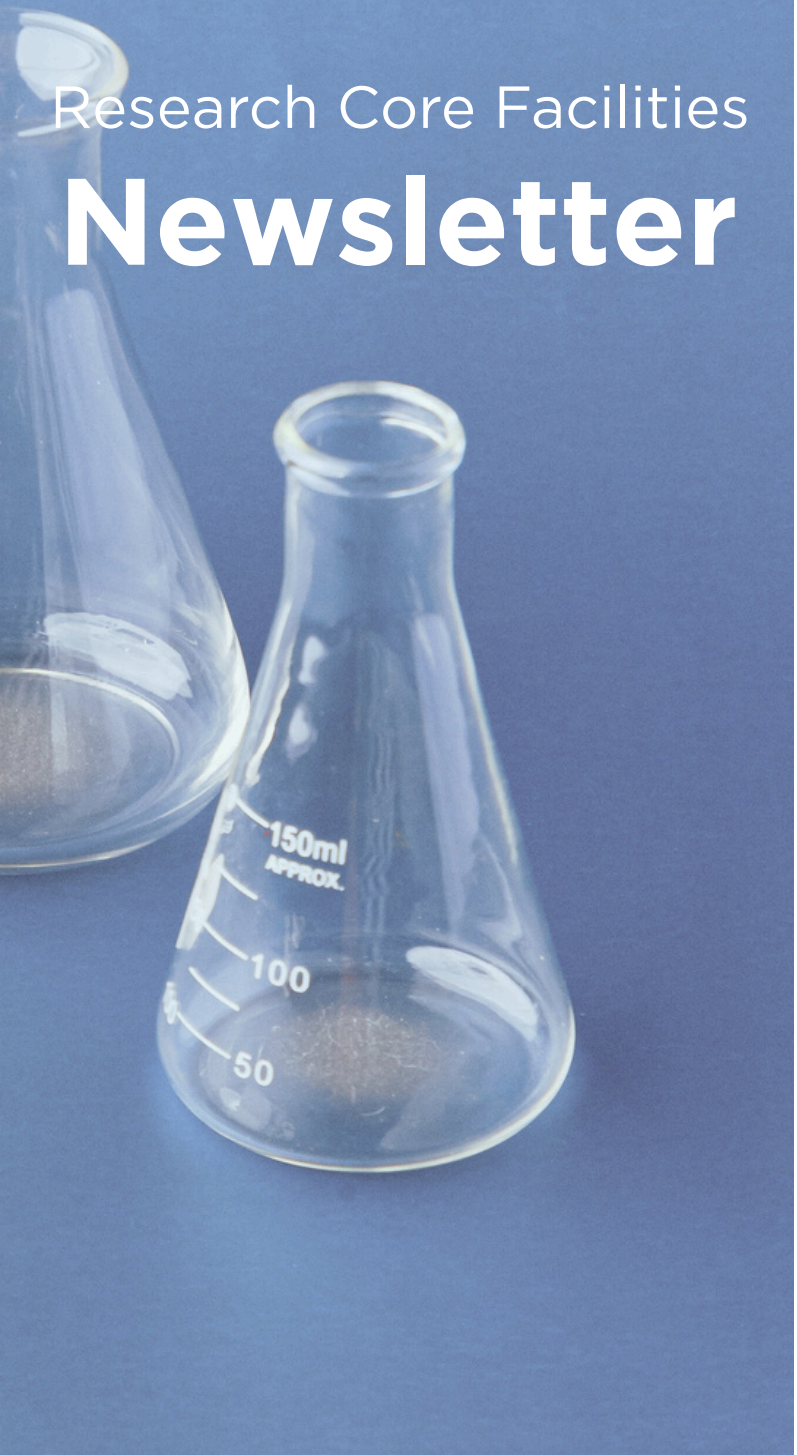
Jan 2026

Research Core Facilities

Newsletter



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News & Announcements

Genomic Core News

Flow Cytometry Spectral Cytometer Sony ID7000

Molecular Devices SpectraMax iD3s

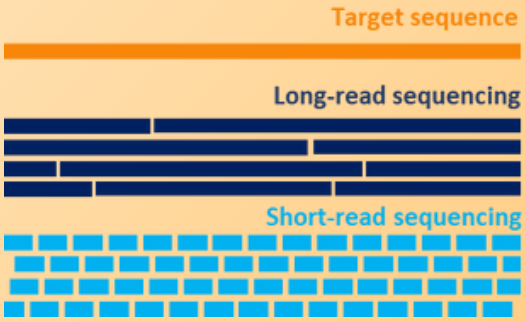
Imaging: New Laser Scanning Microscope

Biosafety Pathogen Records

Genomic Core News

Long -vs- Short Reads.

Choosing the right sequencing method



Before starting your NGS project, there are several aspects to consider. Sample type and final application are obviously the primary ones. However, the platform that will be used for sequencing must be considered too.

Did you know? DNA/RNA sequencing can be performed for short or long library fragments. These are some of the key characteristics of each one:

Feature	Short-read	Long-read
Read length	50-500 bp	1 kb - 100+ kb
Full length target	Very rare	Yes, specialty transcripts
Throughput	Very high	Moderate
Isoform resolution	Limited	Excellent
Structural variants	Limited	Excellent
Genome assembly	Fragmented	Highly contiguous
Sequencing platforms	Illumina, Ultima Genomics, Complete Genomics, Element Biosciences	Pacific Biosciences, Oxford Nanopore Technologies
Common applications	•Bulk RNA-seq: gene expression quantification •Single-cell RNA-seq •Whole-genome sequencing: SNPs and small indels •ChIP-seq, ATAC-seq, CUT&RUN •Targeted panels •Metagenomics (taxonomic profiling)	•De novo genome assembly •Structural variant detection (insertions, deletions, inversions, translocations) •Full-length transcript sequencing •Alternative splicing analysis •Gene fusion detection •Repeat expansion disorders •Direct methylation detection

Long-read sequencing has been use traditionally to study genomes, but it also supports transcriptomics analysis (typically carried out in Illumina sequencers).

Here you can find a nice comparative study for transcriptomics using different platforms

Also, did you know that scRNAseq data can be analyzed in long-read sequencers? Learn more here.

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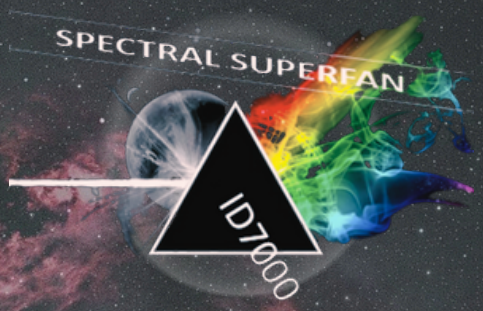
FLOW CYTOMETRY

The Flow Core is excited to announce the arrival of a
NEW SPECTRAL CYTOMETER SONY ID7000 SYSTEM!

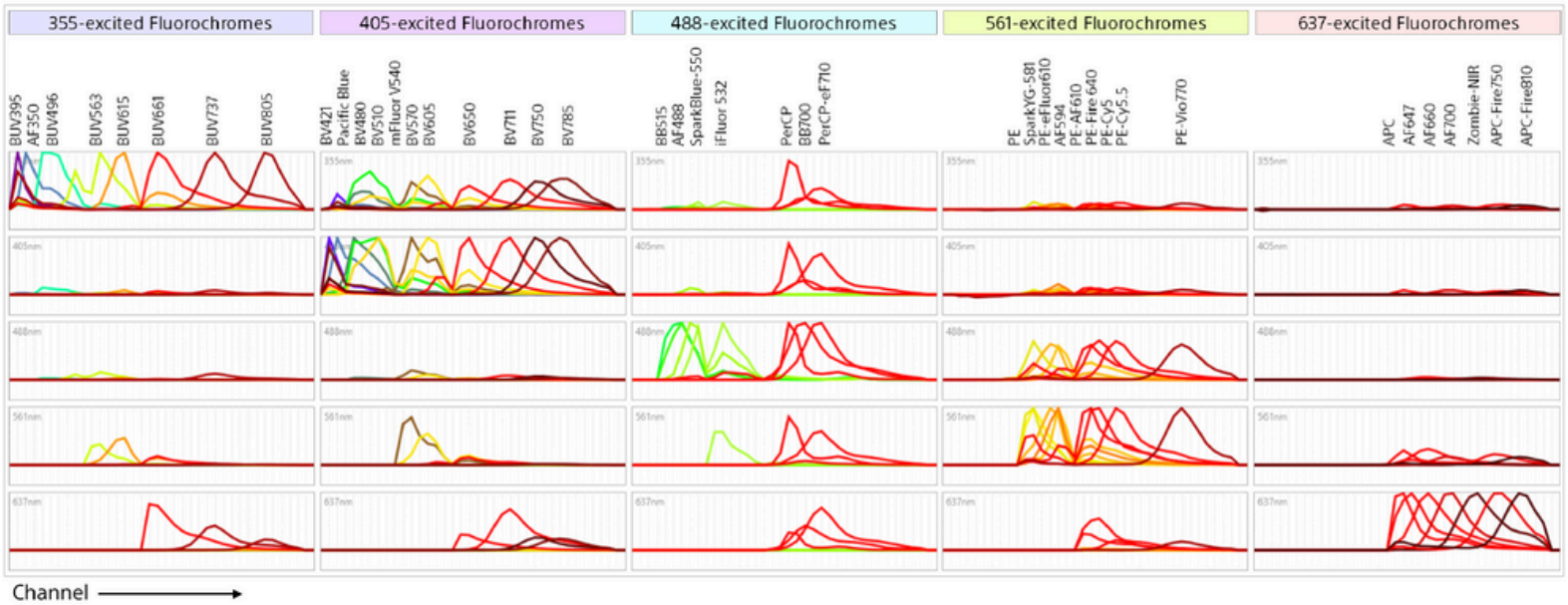
TRAINING ANNOUNCEMENTS TO FOLLOW
Purchased through CFI-JELF funding (Thu-Ni)



SYSTEM HIGHLIGHTS:

- **5-lasers (355, 405, 488, 561, 637nm)** - maximum light detection with minimal photon loss (147 PMT detectors)
- **High-throughput sampler** - provides simultaneous sample agitation and temperature control, handles:
  - Plates: 96-well, 384-well
  - Tubes: 5-mL (24-tube rack)
- **Built-in standardization (hardware and software)** -enables standardization between multiple ID7000 instruments globally (great for clinical study collaborations)
- **Spectral Reference Library** – allows capture of single stain controls for future use
- **Autofluorescence management** - ability to model and separate multiple autofluorescence signatures (asset when running heterogeneous populations i.e. tissue and tumor digests)

EXAMPLE OF 42-COLOR REFERENCE SPECTRA FROM THE ID7000 SPECTRAL REFERENCE LIBRARY :



CLICK TO VIEW **WHITE PAPER**

CLICK TO VIEW **RESOURCES**

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Molecular Devices SpectraMax iD3s Multi-Mode Microplate Reader

We are pleased to inform you that we have purchased a new Molecular Devices SpectraMax iD3s Multi-Mode Microplate Reader. The instrument is currently being set up and will be located in the Analytical Laboratory (Room 654, 6th Floor). This unit replaces two outdated plate readers and was funded through Dr. Claudia DosSantos' CFI award.

The SpectraMax iD3s supports absorbance, fluorescence, and luminescence measurements and is suitable for a wide range of applications, including ELISA, protein and nucleic acid quantification, cell-based assays, and kinetic studies.

Wavelength Ranges

- Absorbance: 230–1000 nm
- Fluorescence:
  - Excitation: 250–830 nm
  - Emission: 270–850 nm
- Luminescence: 300–850 nm

Wavelength Selection

- Monochromator tunable in 1-nm increments

Plate Types

- 6–384 well plates and cuvettes

Temperature Control

- True ambient +5 °C to 66 °C

Click here for user guide and more information

Click here for SoftMax®Pro Data Acquisition and Analysis Software

Online training will be arranged with Molecular Devices.

A separate email will be sent once the training session is scheduled.
If you have any questions, please feel free to contact Research Facilities.

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Imaging Facility

What's coming in 2026

New Laser Scanning Microscope!

Exciting upgrades are on the horizon for the imaging facility, with plans to introduce a new laser scanning microscope in 2026 designed to meet growing user demand and unlock powerful new experimental possibilities. Courtesy of Lee, Szasi, and Kapus's CFI award.

Some of the key features we aim to incorporate into the new system include:

- **Expanded laser lines** with near-infrared extension to image more fluorophores simultaneously and improve imaging depth and sensitivity
- **Precisely tunable excitation and emission** for enhanced multiplexing while minimizing spectral bleedthrough
- **High-speed resonant scanning** for fast live-cell and dynamic imaging
- **Integrated fluorescence lifetime imaging (FLIM)** to separate tissue autofluorescence, enable functional biosensor measurements, and support FRET-based studies
- **Advanced spectral multiplexing** software allowing simultaneous detection and unmixing of 8–15 fluorescent markers

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Biosafety

Keep Your Pathogen Records in Check!

Good news — keeping track of pathogens doesn't have to be tricky!

Here's the scoop:

- Keep it for **5+ years**: All pathogen records stay for at least five years from receipt and while you still have them.
- Don't forget after disposal: If a pathogen is disposed, transferred, or inactivated (like 1:10 bleach treatment), keep the record for **2 more years**.

What counts as a record?

- ✓ Inventory (paper or electronic)
- ✓ Receipt emails or docs
- ✓ Transfer/shipping emails
- ✓ Notes on inactivation or disposal

Pro tip: You don't need to track every tiny tube. Just make sure every pathogen in your inventory is listed. Record the inactivation date, and after 2 years, you can remove it.

Bottom line: Keep your inventory current

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