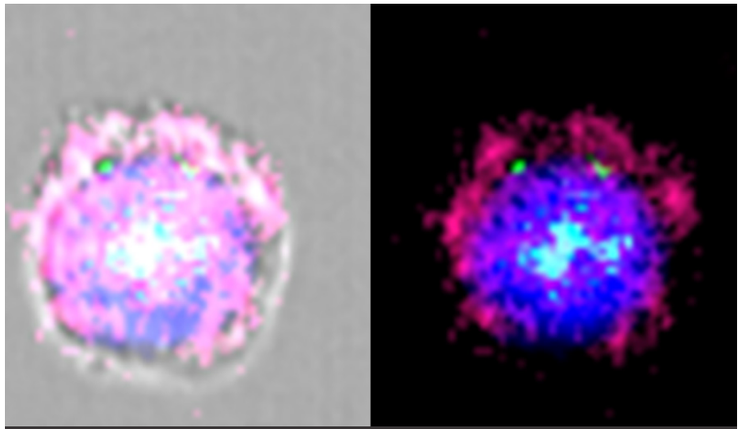
Flow Cytometry



umass.edu/ials/flow-cytometry

Located in the Integrated Sciences Building, the Flow Cytometry Core Facility's mission is to provide access to the latest technologies in flow cytometry to the internal and external research community. Fluorescence based flow cytometric analysis and microscope-based high-throughput imaging instrumentation is available. Analysis equipment is accessible to trained users 24/7 and fluorescence assisted cells sorting is offered by appointment. Instrument training, experimental design, scientific consultation and sample processing are also offered.

The facility accepts samples and will perform requested analysis. We offer training to users to conduct experimentation on a fee for service basis to both internal and external researchers, academic or industry based. Following an initial consultation covering experimental parameters, training and access to the facility is arranged through the director.

ACCESS

To request access, training, or additional information please contact Amy Burnside at aburnside@umass.edu or (413) 545-1385.

Our rates are competitive and tiered based on needs and usage. Visit our website at *umass.edu/ials/flow-cytometry* for current listing.

TRAINING

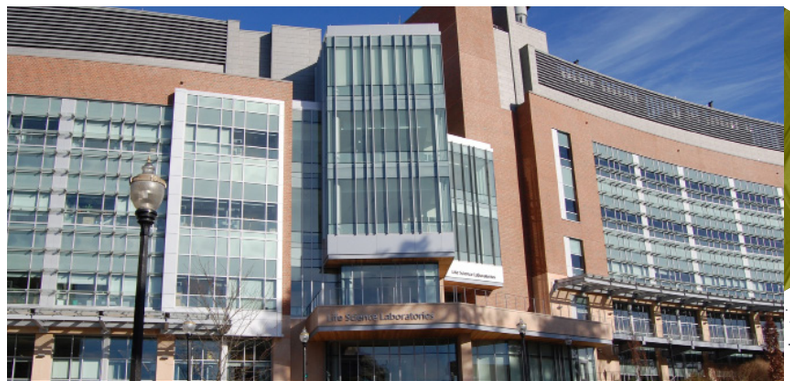
Training for new users consists of:

- lab safety training,
- operation of the instrument and associated software,
- use of data analysis software,
- exporting or presenting data,
- clean up and shutdown of the instrumentation.

Once the training is complete, researchers may schedule their experiments through the director of Flow Cytometry (Amy Burnside).

UMassAmherst | Core Facilities

Core Facilities
University of Massachusetts Amherst
Life Science Laboratories
240 Thatcher Road
Amherst, MA 01003



Research and Innovation to Translate Basic Science into Product Candidates

PARTNER WITH US!

Flow Cytometry Inquiries

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Revision (01/29/19)

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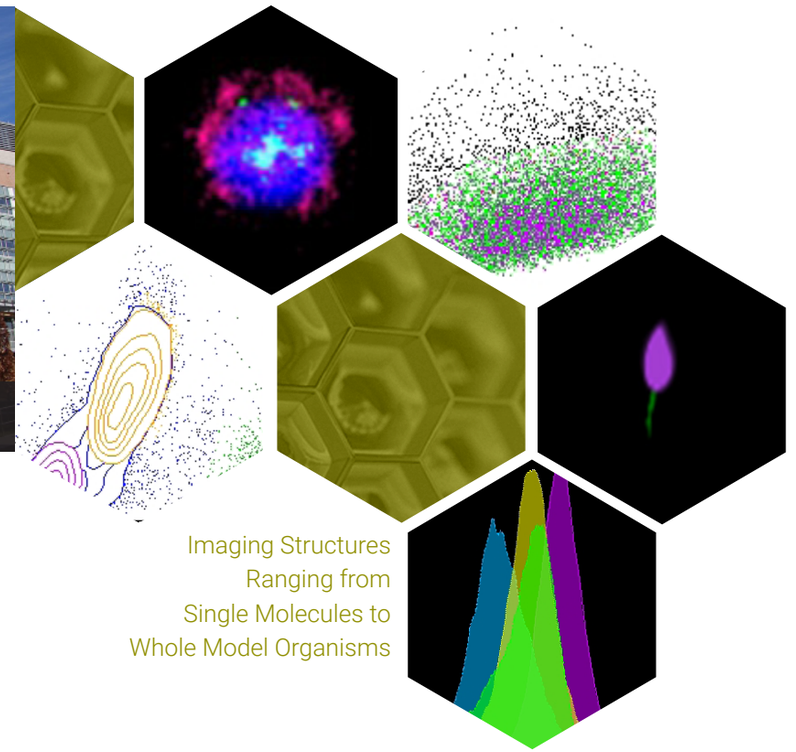
Flow Cytometry

Institute for Applied Life Sciences
University of Massachusetts Amherst



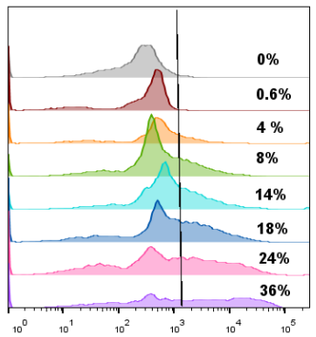
Imaging Structures Ranging from Single Molecules to Whole Model Organisms

WHAT WE OFFER

Flow Cytometry Analysis
Fluorescence Assisted Cell Sorting (FACS)
Imaging Flow Cytometry (Amnis Image Stream)

RESEARCH CAPABILITIES

Flow Cytometric Analysis



Change in expression of antigen from time 0 (top histogram) to 120 min (bottom).

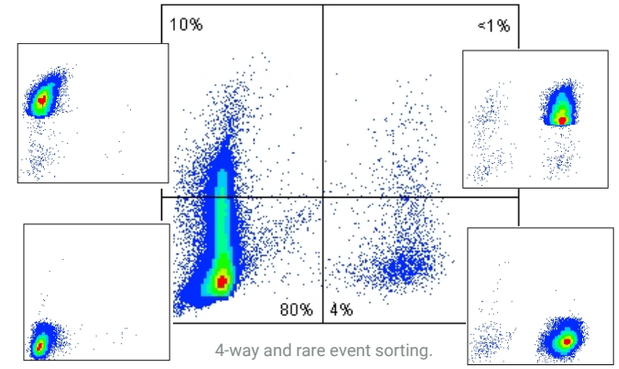
- Analyze cell populations for one or more antigens of interest and up to 16/20 fluorescent markers.
- View change in expression levels of markers over time (see figure above) or at varying levels of treatment.
- Analysis is not limited to mammalian cell lines.
- Count your cells/nanoparticles or vesicles (some size limitations).

What Makes Us Unique

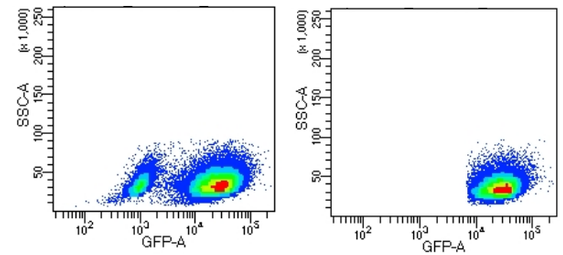
Staff has expertise in flow cytometric analysis and sorting of cells and non-cells/particles including:

- Primary and immortalized cell lines from multiple research models: murine, bovine, porcine, equine, zebrafish, drosophila and human.
- Primary cell lines from a variety of sources including: PBMC, bone marrow, thyroid, spleen, breast tissue and breast milk, brain/neural tissue, pancreatic islets, muscle, and a variety of other cellular origins.
- Additional cell types include: yeast and bacteria (recombinant protein expression) and parasites.
- "Non-cell" particles include: microvesicles and endothelial microparticles, as well as nanoparticles; including particles made of silica and lipids.

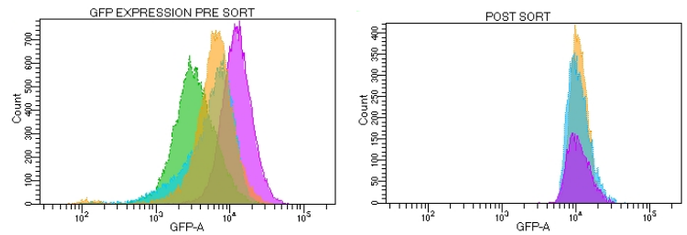
Florescence Assisted Cell Sorting (FACS)



4-way and rare event sorting.



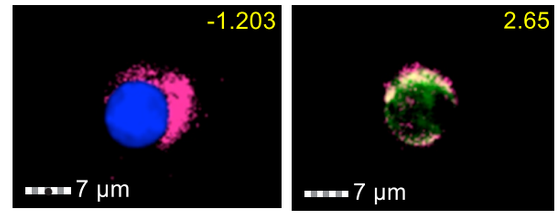
Removal of non-GFP expressing cells in transgenic cell lines.



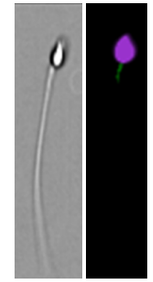
Normalization of GFP expression in cell lines.

- High purity (90-99%) 2, 3, and 4-way sorting.
- Rare Event population isolation in many cases with high purity (90%+) after sort.
- Optimization of transgenic cell lines made using transfection/**CRISPR** technologies:
  - ◊ Eliminate or reduce non-expressing cells from your transgenic cell lines faster, in many cases one to two weeks post transfection.
  - ◊ Normalize reporter gene expression levels.
  - ◊ Create clonal cell lines using 96 well, single cell sorting.
  - ◊ Enhance recombinant protein expression systems by selecting for positive cells.

Amnis Image Stream



Non-nuclear expression Colocalization



- High throughput imaging (20X, 40X, 60X) of your cells/particles.
- See localization of your antigen: nuclear, cytoplasmic (left image), liposomal, ER etc.
- Visualize co-localization of two or more antigens (middle image).
- Look for uptake/localization of your nanoparticle.
- Multiple cell types can be visualized (right image: green indicates mitochondrial localization to mid-piece of sperm cell).

TESTIMONIAL

"The UMass Flow Core Facility has been a great resource for our research on brain development. Aside from the high quality instrumentation they provide, Amy Burnside has been a committed collaborator to help us trouble shoot and perfect our novel use of FACS in our research for RNAseq quality isolations. We could not have obtained our results and supported funding without this facility and its superior technical support."

—Michael Barresi, Assoc. Professor, Smith College

MASSACHUSETTS LIFE SCIENCES CENTER

A significant portion of core equipment has been purchased through MLSC grant funding support.