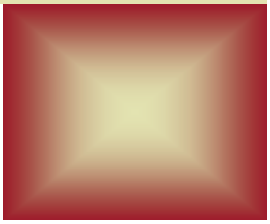
Vol. 1 Issue 1

FLOW CYTOMETRY CORE FACILITY

IU Bloomington Flow Cytometry

Welcome

Welcome to the first newsletter of the IU Bloomington Flow Cytometry Core Facility (FCCF). The FCCF is a full service flow cytometry facility. It houses three instruments, the FACSAria, FACS Calibur, and LSRII. The FACSAria is an analyzer/sorter capable of both 11-color analysis and cell sorting into tubes or micro-titer plates. The FACSCalibur and LSRII are analyzers capable of 4 and 9-color analysis, respectively. We look forward to serving your cell analysis and sorting needs.



Getting to know the Facility - Q&A

Some frequently asked questions about flow cytometry and the FCCF

Q1 – So, what is flow cytometry?

A1 – Flow cytometry is a way of measuring characteristics of a cell or organism by light scatter properties as well as fluorescence

Q2 – Why should I use flow cytometry?

A2 – Flow cytometry can decrease the amount of time spent analyzing a sample and increase the accuracy of sample analysis. Analysis that can take hours using microscopy methods, may take minutes or even seconds to analyze using flow.

Q3 - What types of services do you provide?

A3 - We provide both analysis and sorting services to all researchers on the IU Bloomington campus. Anyone wanting to use an analyzer has the option of being trained on the instrument or having a technician run their samples. The sorter is a technician-only run instrument. In the near future we will also be adding a Drosophila embryo sorter (see "New!" for more details).

Q4 - I have little or no experience with flow cytometry and don't know if flow cytometry will work for my application; can you help me?

A4 - Absolutely! We provide support through instrument training, help with experimental design, and have various flow cytometry links on our website that provide tutorials and other flow cytometry information.

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Published Research

One of the first flow cytometry projects on the IU campus was conducted by Erik Osnas, a former graduate student in the Lively Lab. His research interest was in the ecology and evolution of host-parasite associations, and at the time he was working with the snail-trematode system *Potamopyrgus antipodarum-Microphallus* sp.

With the help of fellow IU researchers, *Current Protocols in Cytometry* (a flow cytometry resource available in the Life Sciences Library at IU Bloomington) and a representative from BD Biosciences, we developed a special protocol for his cell type. Erik started with frozen snail tissue, carefully dissociated the tissue into single cells, stained those cells with a DNA marker (Propidium Iodide) and performed ploidy analysis on his cells using the FACSCalibur.

For more information on his research, see:

E. E. OSNAS, C. M. LIVELY (2006) Host ploidy, parasitism and immune defence in a coevolutionary snail-trematode system. Journal of Evolutionary Biology 19 (1), 42–48.

Q&A cont.

Q5 – You mentioned that the facility provides both analysis and sorting services. Can you tell me more about sorting?

A5 – We have the capability of not only analyzing cells, but recovering any cells that you might be interested in. This is called sorting. As an example, say you would like to separate GFP-expressing cells from a population that is a mix of non-GFP and GFP expressing cells. Using the FACSAria, we have the capability of sorting, at most, four populations into tubes. However, the Aria is also capable of multi-well sorting (≤ 384 wells), as well as single cell sorting. One limitation is the size of the cell or organism (see next question).

Q6 - What type of cells can you sort?

A6 - We can sort tissue culture cells, single cell organisms, or anything that can be dissociated from its host organism. Sorted cells must be between 0.2-30µm and must be of Bio-safety Level 2 or less.

Q7 – This sounds interesting and might be something that could help me in my research. What do I need to do now?

A7 – Contact the facility (Christiane Hassel) and let us know about your research ideas. We will meet with you and talk about your project to make sure it is possible with our instrumentation. We require anyone who would like to use the facility to go through Bio-safety Level 2 (BSL2) training regardless of the Bio-safety level you currently work at. We know that some researchers may already have BLS2 training for their own labs, but the BSL2 training required is unique to the FCCF. It takes approximately 15-20 minutes.

We look forward to helping you in your flow cytometry endeavors.

NEW!

This January we will be moving a COPAS *SELECT* instrument into the facility. Originally purchased by Thom Kaufman as a *Drosophila* embryo sorter, the COPAS *SELECT* is a sorter that "features a mid-size flow cell (500 µm) for use with [organisms and cells] from 20 to 350 microns"(http://www.unionbio.com/products/select.html).

Thom has graciously agreed to move the instrument into the FCCF so that it may be accessible to all researchers at the university. The instrument is scheduled to be upgraded in the latter part of January. The COPAS instrument should be available late January/early February. More information will be sent in the near future.

Upcoming events:

Late January/early February - Installation and upgrade of the COPAS *SELECT* embryo and large particle sorter - Date TBD

Mid-February - Indy Flow Users Group (IFUG) meeting at IUPUI, date and Speaker TBA; for more information go to www.ifug.org

March 11-13, 2008 - FloCyte Basic and Multiparameter flow courses, IUPUI, for more information go to: http://www.flocyte.com/FRTP/itinerary.htm

FCCF Oversight Committee

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Contact Information

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