

"Go with the Flow..."

# Cytometry Research, LLC

"...Flow Cytometry, that is!"

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Cutting Edge Technology for Cutting Edge Scientists

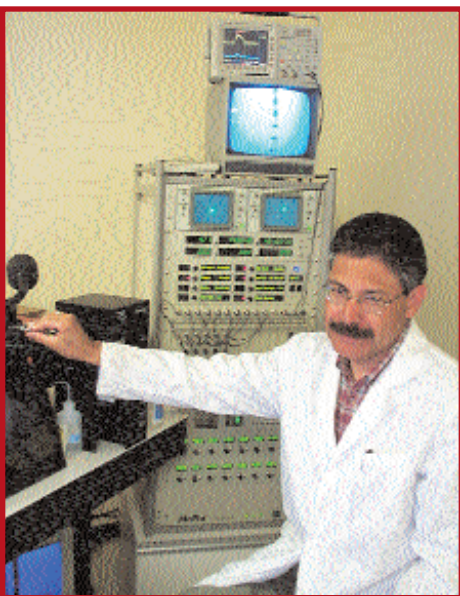
August 2001

## San Diego Biotechnology Center Now Open

Cytometry Research, LLC, a San Diego biotechnology service company, and Cytomation, Inc., a global bioinstrumentation and software company, successfully launched the new San Diego Biotechnology Center in March. This center will make Cytomation's high performance, ultra high-speed MoFlo® Modular Flow Cytometer and Summit™ Software available to local biotech companies.

Flow cytometry is the science of examining physical and chemical properties of live cells, other biological particles, and beads. The flow cytometer uses laser excitation and fluorescence signal detection to measure the size, shape, DNA content, surface receptors, enzyme activity, membrane permeability and calcium flux of particles as they pass through in a fluid stream.

The MoFlo® is equipped to separate and collect fluorescence-labeled single cells or beads from a sample. The flow cytometer nozzle is vibrated at a high frequency that causes the fluid stream exiting the flow chamber to break into discrete droplets. As the cell or bead reaches the break-off point, it receives a positive or negative charge. As the droplets pass through two vertical deflection plates, the electric field created by those plates directs them toward the appropriate user-specified collection tubes while uncharged droplets flow into a waste receptacle. The state-of-the-art MoFlo® can separate four sub-populations simultaneously at high speeds. This allows Cytometry Research to further expand the GLP flow cytometry services already offered to their customers.

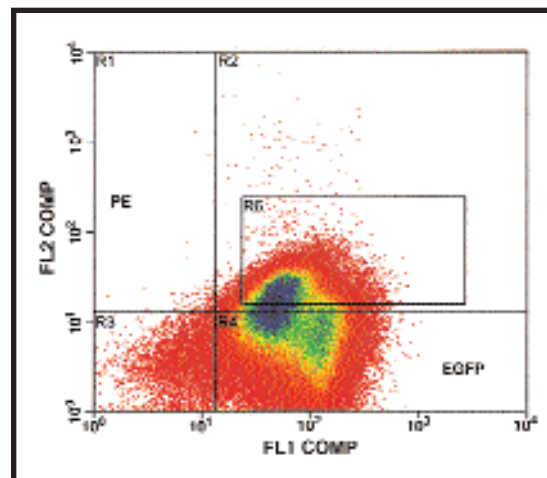


Cytometry Research now utilizes the MoFlo® Sorter as part of a collaboration with Cytomation. Leo Fernandez helps scientists take advantage of the greater options available with this new system.

## GFP and Flow Cytometry

Flow cytometry is a dynamic, ever-changing technology that continually seeks and implements new fluorescent probes to broaden its technology applications. Green fluorescent protein (GFP) is the most important fluorescent probe to be added to the repertoire in recent years.

GFP, a bioluminescent protein derived from the jellyfish *Aequorea victoria*, has found a wide variety of applications in flow cytometry. It is a relatively small protein of 238 amino acids, is very stable, and is non-toxic to living cells. When excited, GFP exhibits a very bright signal. Wild-type GFP has a minor excitation peak at 475 nm and an emission peak at 508 nm. New, improved GFP variants were developed that have major excitation peaks between 488 nm and 514 nm. Since this excitation range is optimal for the majority of flow cytometers, the capabilities for GFP flow cytometric analysis and cell sorting have greatly expanded. New GFP variants are in development (e.g. DsRed, EYFP, EGFP, ECFP, EBFP) that allow for the simultaneous viewing of multiple GFP expression markers, as well as in conjunction with other probes.



Legend. This dual-color experiment shows high expression of single positive GFP-expressing cells (green) and another cell population expressing GFP and labeled with PE (dark blue). R6 represents the dual-labeled cell sorting window.

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