# The Marker

FCS Laboratory Monthly Newsletter

February 2017 Issue 19


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### Upcoming Events:

- Life Science Washington Bio on the Vine | Feb 9, 2017 | Seattle, WA
- SoCal Flow SUMMIT 2017 | April 24 - 25, 2017 | Irvine, CA
- Life Science Innovation Northwest | May 23 - 24, 2017 | Seattle, WA
- 2017 BIO International Convention | June 19 - 22, 2017 | San Diego, CA

## The Advantages of Fluorescent Barcoding of Human Cells Using Flow Cytometry For High Throughput Testing With an Application For Human Clinical Trials

By: Rubina Pal, Lynette Brown, and Jennifer J. Stewart

The use of fluorescent barcoding can be very useful in research for high throughput testing with an application for human clinical trials. Different concentrations of the reactive fluorescent dye are used to stain cell samples. This gives each sample a unique intensity distribution, which in turn allows samples to be combined prior to antibody staining. The resolution of the staining profile is then recognized on the flow cytometer through gathering of data and analysis.

Human whole blood samples were obtained to conduct the experiment. These samples were isolated, stimulated for pERK expression, fixed, and frozen. Cells were barcoded with Violet Fluorescent Cell Barcoding Dye (FCB Dye) and intracellular staining was performed for pERK. The BD FACSCanto II Flow Cytometer was used to acquire the cells for the study.

The results highlight the profiles of 16 individual samples that are barcoded and stained with pERK, and then tested as one sample. Individual cell populations could be deconvoluted during the analysis and the median fluorescence of the pERK was increased over background (unstimulated).

The results of the study show that barcoding can be very effective when a large number of samples are received. The advantages of barcoding include sample saving and time saving. Also, this type of testing eliminates sample-to-sample or batch-to-batch variation when multiple samples can be processed in a single tube.

**Simplified analysis of high-throughput barcoding data as heat map to reveal protein expression change.**

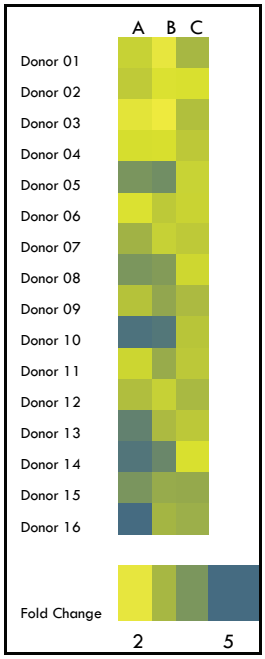


**Figure.** Fold change in expression of phosphorylated signaling proteins. Multiparametric profiling in 16 samples revealed an upregulation of pERK (**A**), pS6 (**B**) and p90RSK (**C**) following stimulation with

### REFERENCES


Krutzik, P.O, Clutter, M.R, Trjo, A, Nolan, G.P. 2011. Fluorescent Cell Barcoding for Multiple Flow Cytometry. Curr Protoc Cytom, Unit 6.31.

BD Biosciences. 2016. Technical Data Sheets. httpwww.bdbiosciences.com/home.jsp


## FCSL February 2017 Updates

* We will be hiring two new staff members this month. This will include another Research Associate and a Study Coordinator.

## February Fun in Washington

* Come visit the Bluegrass Festival from February 23-February 26, 2017. It will take place at the Hyatt Regency, Bellevue, WA.
* The Seattle Boat Show is from January 27-February 4, 2017 at Century Link Field.
* Hearts & Wine Jazz Show is on Friday, February 10, 2017 in Downtown Seattle.


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