

## **Multiparameter Flow cytometry**

Flow cytometry is a powerful method to analyze single cells that is rapidly evolving. But what actually happens to the cells as they are run through the instrument? How are the signals generated and how do I know it's a real signal?

This course is intended to answer some of these questions by introducing basic principles of multiparameter flow cytometry. The lecture and theoretical introduction will give an overview of the technique and the technology behind flow cytometry. Additionally, new developments in the field of flow cytometry, such as spectral analysis and mass cytometry, will be introduced.

The practical part of the course will focus on experimental design and data analysis of standard multiparameter flow cytometry. We will examine considerations to the process of proper sample preparation, experimental design and data analysis to produce good flow cytometry data. We will look at various kinds of particles that can be run, what in general must be done to prepare them, how signals are generated and controlled, and how data is analyzed. The intent is to help the learner understand the entire process, with a focus being placed on generating good flow cytometry data.

### **Literature:**

1. Chattopadhyay PK, Roederer M. Cytometry: Today's technology and tomorrow's horizons. *Methods*. 2012;57(3):251-258. doi:10.1016/j.ymeth.2012.02.009.
2. Chattopadhyay PK, Gierahn TM, Roederer M, Love JC. Single-cell technologies for monitoring immune systems. *Nat Immunol*. 2014;15(2):128-135. doi:10.1038/ni.2796.
3. Bendall SC, Nolan GP, Roederer M, Chattopadhyay PK. A deep profiler's guide to cytometry. *Trends in Immunology*. 2012;33(7):323-332. doi:10.1016/j.it.2012.02.010.

### **Please note:**

For the Advanced Methods Course you have to bring your own laptop.