

High dimensional single cell analysis using flow- and mass cytometry ITN EU, 18th-20th of November 2015

Aims The aim of this course is to provide the participants with a solid understanding of the principles underlying current high-end cytometry methods for high dimensional data analysis, including fluorescence-based cytometry as well as mass cytometry. One main focus of the course will be manual and automated methods for the analysis and display of the resulting datasets.

General notes 15 participants, 3 instructors
Y44-H-05, Y15-G-19 and Y42-G-53
computer room Y11-J-05
Instrument rooms: 42-H-77 and 42-J-50
Italic = hands-on session

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18/11/15	DAY 1		Location
13:00-13:15	00:15	Opening Remarks	Y44-H-05
13:15-14:00	00:45	Hardware for high dimensional fluorescence based single cell analysis > High-end Fortessa > SP6800 Spectral Analyzer	Y44-H-05
14:00-15:00	01:00	Hardware for mass cytometry > CyTOF	Y44-H-05
15:15-16:00	00:45	Probes and methods for high dimensional single cell analysis > Fluorescence-based antibodies: Emission and absorption > Masstag-based antibodies > Cellular barcoding	Y44-H-05
16:15-17:45	01:30	Experiment design > Usual experimental layouts (things to consider before starting the experiment) > Preparing for the experiment (Optimize reagent use, doublet discrimination, dead cell exclusion) > Spectral overlaps and compensation in flow and mass cytometry > Controls in flow cytometry (biological, instrument, gating)	Y44-H-05
19/11/15	DAY 2		
9:15-13:00	04:00	Platform-specific panel assembly and sample acquisition - CyTOF (2 groups) > Considerations for mass cytometry based panels > <i>Handling of the instrument</i> > <i>Sample acquisition</i>	Y15-G-19 group 1 Y42-G-53 group 2 42-H-77 CyTOF
14:00-18:00	04:00	Platform-specific panel assembly and sample acquisition - Sony SP6800 (2 groups) > Considerations for fluorescence based cytometry based panels > <i>Handling of the instrument</i> > <i>Sample acquisition</i>	Y42-J-11 group1 Y42-G-53 group2 Y42-J-50 SP6800
20/11/15	DAY 3		
9:15-10:15	01:00	Manual data analysis, visualization and troubleshooting	Y11-J-05
10:15-11:15	01:00	Approaches for automated data analysis and data normalization	Y11-J-05
11:15-13:00	01:45	<i>Hands-on introduction to automated data analysis using R and MATLAB</i>	Y11-J-05
14:00-14:45	00:45	<i>Hands-on introduction to Cytobank</i>	Y11-J-05
15:00-18:00	03:00	<i>Hands-on data analysis with sample data and acquired data</i> > Cytobank: manual and automated analysis (sample data) > R, MATLAB and Cyt: automated analysis (sample data)	Y11-J-05