

FLOW CYTOMETRY: FROM CONVENTIONAL TO FULL SPECTRUM

6-10 November 2023, Institut Pasteur de Montevideo, Uruguay

Organizing Committee:

Mariela Bollati-Fogolín
Paula Céspedes
Zosia Maciorowski
Karen Perelmuter
William Telford

Course official language: Spanish and English when applied to foreign speakers.

List of speakers/instructors:

Mariela Bollati

Unidad de Biología Celular, Institut Pasteur de Montevideo, Uruguay.

Paula Céspedes

Unidad de Biología Celular, Institut Pasteur de Montevideo, Uruguay.

Roxana Del Río-Guerra.

Director of the Flow Cytometry and Cell Sorting Facility. The University of Vermont, US

María James

VP Application Support. Cytex, Biosciences. US

Zosia Maciorowski

Chair of the ISAC Live Education Delivery Task Force. France

Lola Martínez

Flow Cytometry Unit Head, Centro Nacional Investigaciones Oncológicas (CNIO), Spain

Sophie Novault (remote)

Flow Cytometry Platform, Institut Pasteur de Paris, France

Karen Perelmuter

Unidad de Biología Celular. Institut Pasteur de Montevideo, Uruguay.

María Florencia Quiroga.

Instituto de Investigaciones Biomédicas en Retrovirus y SIDA (INBIRS). Argentina

William Telford.

Flow Cytometry Facility, Center for Cancer Research (NCI). US

DAY 1: November 6	<p>9:00 - 9:30: Welcome and introduction to the course agenda. <i>Mariela Bollati</i></p> <p>9:30 – 10:30: Introduction to the fundamentals of Flow Cytometry. <i>Zosia Maciorowski</i></p> <p><i>10:30 - 11:00: Coffee Break</i></p> <p>11:00 - 12:00: Fluorescence, Fluorochromes, Multicolor, Compensation. <i>Florencia Quiroga</i></p> <p><i>12:00 - 13:30: LUNCH</i></p> <p>13:30 - 14:30: Analysis and representation of Flow Cytometry Data. <i>Roxana Del Río-Guerra</i></p> <p>14:30 - 15:30: Good practices in Flow Cytometry: instrument QC, importance of controls, antibody/reactive titration. <i>Lola Martínez</i></p> <p>15:30 - 18:00: Simultaneous Rotation between 2 activities: 1- How to build a Flow cytometer (Live demo: William Telford) and 2-Familiarization with the Flow Cytometers (Attune/Fusion): practicing with GFP-positive cells and a cell viability marker. <i>All instructors</i></p>
DAY 2: November 7	<p>9:00 - 10:00: Introduction to full spectrum flow cytometry. <i>Maria Jaimes</i></p> <p>10:00 - 10:30: Spectral Flow Cytometry Sony. <i>Sophie Novault</i></p> <p><i>10:30 - 11:00: Coffee Break</i></p> <p>11:00 - 12:00: Panel design, assay optimization, data QC. <i>Maria Jaimes</i></p> <p><i>12:00 - 13:30: LUNCH</i></p> <p>13:30 – 15:00: Tutorials based on different Software (FlowJo, FCS Express, Free) <i>Lola Martínez & Roxana Del Río-Guerra</i></p> <p>15:00 - 18:00: Simultaneous rotation between 3 activities: 1-Familiarization with Aurora, 2-Multicolor analysis in conventional FC, 3- Computer room: 1st approximation to data analysis. <i>All instructors</i></p>
DAY 3: November 8	<p>9:00 - 10:00: Different flow cytometers: Advantages and Disadvantages, Limitations and opportunities. <i>William Telford</i></p> <p>10:00 - 11:00: Cell Sorting (fundamentals, sample preps, and how to keep cells happy) <i>Sophie Novault</i></p> <p><i>11:00- 11:30: Coffee Break</i></p> <p>11:30 - 12:30: Tutorial: Panel design, Compensation, Spectral unmixing. <i>Maria Jaimes</i></p> <p><i>12:30 - 14:00: LUNCH</i></p> <p>14:00 - 17:30: Simultaneous rotation between 3 activities: 1-Demo of Cell sorting, 2- Multicolor analysis in Aurora (10-color panel containing APC & AF647), 3- Computer room: Analysis of the obtained data. <i>All instructors</i></p>
DAY 4: November 9	<p>9:00 - 10:00: Biosafety plans in a flow cytometry lab. <i>Lola Martínez</i></p> <p>10:00 - 10:30: Flow cytometry Applications I: Nanoflow, small particle analysis. <i>Sophie Novault</i></p> <p><i>10:30- 11:00: Coffee Break</i></p> <p>11:00 - 11:45: Flow Cytometry Applications: Part II. <i>Florencia Quiroga</i></p> <p>11:45 - 12:30: Flow Cytometry Applications: Part III. <i>Roxana Del Río-Guerra</i></p> <p><i>12:30 - 14:00: LUNCH</i></p> <p>14:00 - 15:00: High-Dimensional Data Analysis. <i>María Jaimes</i></p> <p>15:00 - 18:00: Simultaneous rotation between 3 activities: 1-Applications (cell cycle), 2- Applications (small particles, nanobeads), 3- Computer room: Analysis of the obtained data. <i>All instructors</i></p>
DAY 5: November 10	<p>9:00 - 10:00: Data repositories & Best practices in publishing Flow Cytometry data. <i>Zosia Maciorowski</i></p> <p>10:00 - 13:00: Processing of obtained data during practical activities (computer room).</p> <p><i>13:00 - 14:00 LUNCH</i></p> <p>14:00 - 16:00: Results discussion. Group presentations, troubleshooting & final discussion. <i>Participants and instructors</i></p> <p>16:00 - 17:00: Final evaluation, feedback and course wrap-up. <i>Mariela Bollati</i></p> <p>Practical activities: in blue indicates wet lab and in green Software and Data analysis</p>