# Flow Cytometry – Interdipartimental service (DSB DiBIO DMM)

## Overview

Flow cytometry is an analytical technique used in the field of cell biology and immunology. It allows for the simultaneous measurement of multiple physical and chemical characteristics of individual cells or particles as they flow in a fluid stream through a laser beam. The method involves labeling cells with fluorescent markers specific to certain cellular features, enabling the detection and quantification of various parameters, such as cell size, granularity, and the expression of specific proteins. By harnessing laser technology and advanced optics, flow cytometry provides researchers with a powerful tool to analyze complex cellular populations, investigate immune responses, and explore various aspects of cell function and behavior at the single-cell level.

## Equipment

The BD LSRFortessa™ X20 SO is a state-of-the-art benchtop flow cytometer designed for basic research applications, with a specific focus on multiparametric analysis.
The instrument supports a variety of experimental investigations, from immunophenotypic analysis to kinetics and evaluation of the cell cycle, as well as studies of cellular functionality and intracellular calcium fluxes.
Installed laser and main fluorophores:

- Laser 488 nm (Blue) : FITC, PE, PerCP, PerCP-Cy 5.5, PE-Cy 7, PE-Cy5, PE-Texas, Alexa 488, IP, BD Horizon™ PE-CF594
- Laser 640 nm (Red) : APC, APC-Cy7, Alexa 633, Cy 5, Cy 5.5
- Laser 405 m, (Violetto) : DAPI, Hoechst, Alexa 430, Alexa 405, Cascade Blue, ECFP, Fura-red, BD Horizon™ V450, BD Horizon™ BV421, BD Horizon™ V500, BD Horizon™ BV510, BD Horizon™ BV605, BD Horizon™ BV650, BD Horizon™ BV711, BD Horizon™ BV786

User manuals are available at the following links [LINK]

## Location

LSR Fortessa X20 is located at 6$^{th}$ floor, north side, room GEOTEC 07 128-150.



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**Opening hours**

Monday to Sunday, 00:00 AM – 24:00 AM

Please note that, according to the **Safety Guidelines** of University of Padua:

***"Do NOT work alone outside of working hours**, particularly in cold rooms, or in rooms with X-ray sources and in cases of complex and dangerous operations.*

***It is always important to check if specific procedures require special attention (especially for the cold room).***

***The presence of undergraduate students is conditioned on the presence of at least one structured staff unit."***

**Service Coordinator**

Prof Barbara Molon

**Staff**

Dr Francisca Venegas (francisca.venegas@unipd.it)

Dr Paola Caccin (paola.caccin@unipd.it, 049 8276026)

The Facility's staff is available Monday to Friday during working hours (09:00-16:00).

# Guidelines

**Use of the instrument and training**

Users are expected to perform experiments **independently** and must be adequately trained.

Only users who have attended the **training course** can use the instrument.

This course is provided, **upon request**, by the technical staff and does not cover flow cytometry techniques.

For first time users, special application or any other issue regarding the instrument and related experiments, please contact the staff of the facility.

**Booking procedures**

Prior to use, it is mandatory to reserve instruments for every session of work or analysis.

Reservations must be made, using your laboratory account, through the booking platform of the Department of Biomedical Sciences, at:

https://prenotazioni.biomed.unipd.it/strumenti/week.php



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If you don't have an account to access the booking platform, please contact our ICT service staff at **informatica.biomed@unipd.it**
When making your reservation, indicate the name of the user, the group leader, and lab phone number.
If necessary, reservations can be cancelled no later than 24h prior to the reserved slot.

## Rules

- At the **end of each work session**, the user must perform washes according to the following schedule:
  - Cleaning Solution 1' open arm (OA) + 1' closed arm (CA),
  - Rinse Solution 1' OA + 1' CA,
  - Water 1' OA + 1' CA.
- Before turning off the instrument, **the last user of the day** must perform washes according to the following schedule:
  - Cleaning Solution 1' OA + 5' CA,
  - Rinse Solution 1' OA + 5' CA,
  - Water 1' OA + 5' CA.

- When the FACS Flow fluidic station alarm sounds, the partially empty container must be replaced with a full one. Then, silence the alarm and press the re-start button.
- Always leave the room in order, disposing of the used tubes in your own laboratory. Any anomalies or malfunctions of the instrument should be reported to the technical supervisors.
- Calibration with CS&T, necessary for specific needs, must be done by the user at the beginning of their work session.
- In accordance with the scheduled shifts for individual research groups indicated in the "centralized" flow cytometer waste collection calendar, the user must bring 5 empty 10-liter containers on Monday morning and dispose of the full ones. Report the following on the accompanying sheet and the white label:
  - Waste Code: 07.07.04*
  - Description: Saline solutions with trace colorants
  - Applicable Pictograms: skull (main risk) above flame, fish, and R.



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# Costs

**DSB, DiBio, DMM** €/hours 23,00

**UNIPD** €/hours 52,00

*LEGEND*
*DSB: users of the Department of Biomedical Sciences*
*DiBio: users of the Department of Biology*
*DMM: users of the Department of Molecular Medicine*

*UNIPD: Users of the University of Padua (except DSB)*

DSB owns the cytofluorimeter as part of its inventory and is financially responsible for any necessary management and ordinary/extraordinary maintenance expenses.
Users will receive a biannual report that summarizes your reservations, based on the online booking calendar.



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