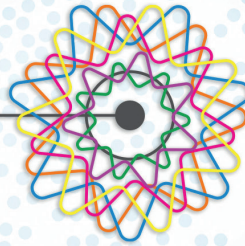




FLOW CYTOMETRY UNIT



COLLABORATION OPPORTUNITY

FLOW CYTOMETRY UNIT

- State of the art equipment and expertise
- Validated flow cytometry panels for human and mouse cells
- Panel design and panel optimization
- Basic and advanced data analysis



UHASSELT

KNOWLEDGE IN ACTION

EQUIPMENT AND POSSIBLE APPLICATIONS

At the Flow Cytometry Unit (FCU) of Hasselt University, we can provide a tailor-made approach for (single) cell analyses. This can go from broad immunophenotyping of human samples, to sorting of transgenic/transfected mouse cells, to preparation of single cell libraries for downstream RNA-sequencing, to measuring small particles such as extracellular vesicles. The FCU team assists you at every step, from experimental design to sample preparation, acquisition and even data analysis.

ACQUISITION



BD LSRFortessa

The BD LSRFortessa is equipped with four lasers and can detect forward scatter (FSC), side scatter (SSC) and up to 16 colours simultaneously. It is coupled with a high throughput sampler (HTS), allowing the acquisition of samples in 96-wells plates.



Cytek Aurora

The Cytek Aurora is a spectral flow cytometer, equipped with 4 lasers (V/B/YG/R) and 48 + 3 detectors, which allows for measuring the full spectrum of fluorescent signals. This technology significantly improves sensitivity, resolution, and increases the number of fluorochrome combinations that can be made. This device is also equipped with an ESP module, which allows for small particle detection, down to 70 nm (e.g. extracellular vesicles).

SORTING



BD FACSAria II

The BD FACSAria II is equipped with two lasers and can detect FSC, SSC and up to 7 colours simultaneously. It can sort up to 10 000 events per second with high accuracy. Cells can either be sorted into 5 ml tubes, allowing for sorting of four populations at the same time, or directly onto glass slides or in 96/384 well plates (one population at the time). This platform allows for single cell sorting for further downstream processing, for instance for single cell RNA sequencing.



BD FACSAria Fusion

The BD FACSAria Fusion is equipped with four lasers and can detect FSC, SSC and up to 16 colours simultaneously. Its setup is equivalent to that of the BD LSRFortessa, which makes it possible to use the same panel for acquisition and for sorting of cells. It is integrated in a BSL2 cabinet, which allows for sterile sorting for downstream cell culture. Similar to the BD FACSAria II, cells can be sorted into 5 ml tubes, allowing for sorting of four populations at the same time, or directly onto glass slides or in 96/384 well plates (one population at the time).

SINGLE-CELL MULTI-OMICS



BD RhapsodyTM Express

The BD Rhapsody Express is a bench-side system for high throughput targeted single-cell RNA-Seq analysis, starting from single-cell suspensions. The workflow is designed and optimized to remove cell imaging during the process. We have experience with the single cell sort and preparation of the different libraries. Sequencing is outsourced to any desired external partner.

CENTRIFUGE-FREE WASHING



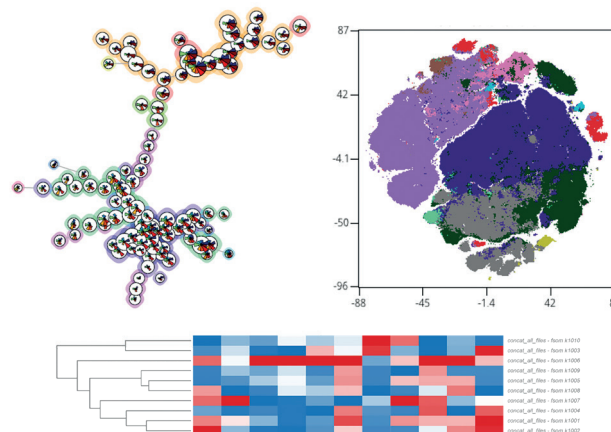
Curiox HT2000

The Curiox HT2000 is a laminar wash system, which performs washing of single cell suspensions without centrifugation. This significantly improves quality of the samples, removing more debris and unbound antibodies compared with traditional centrifugation-based washing. It is particularly beneficial when analysing tissue-derived samples or when preparing samples for single-cell (multi-) omics.

ANALYSIS

Software packages: FACSDiva v9; FlowJo v10 with additional plug-ins; OMIQ; SpectroFlo

- Manual gating for analysis of complex datasets
- Manual gating for analysis of rare immune cell subsets
- Cell proliferation and suppression analysis
- Cytometric bead array data analysis
- Clustering algorithms (e.g. FlowSOM, t-SNE, UMAP, ...)



VALIDATED PANELS

We offer the use of validated panels for broad immunophenotyping of human or mouse samples, or for specialized characterization of T and B cells. They can be discussed upon request. In addition, we have years of experience with building multicolour panels, and can provide help with the design and optimization of custom panels.

Examples:

- Human general immune cell panel (T cells, B cells, monocytes, NK cells)
- Human T cell subset panel (naive, memory Th cells, Tregs)
- Human B cell subset panel (all developmental B cell stages)
- Mouse inflammation panel (T cell subsets, B cells, monocytes/macrophages)

RELATED AVAILABLE SERVICES

- Dedicated cell culture labs for primary human and mouse cells & cell lines
- Incucyte® live cell analysis system
- Facilities for downstream analysis: qPCR, western blot, immunocytofluorescence, ...
- Advanced microscopy centre (<https://www.uhasselt.be/aomc>) for state of the art imaging
- Immune status monitoring can also be established via several validated qPCR panels present at BIOMED to study immune cell subsets and related cytokines and neurotrophic factors.

COLLABORATION OPTIONS

- Fee-for-Service: performing the relevant experiments for you.
- Consultancy and training: guiding your experimental set-up and training researchers at your location or at our facilities.
- Research collaboration: open for joint grant applications when the project is complementary with our own research lines and goals.

RELEVANT PUBLICATIONS

- Schutz L. et al., Biol Sex Differ 2024 doi: 10.1186/s13293-024-00677-1
- Baeten P. et al., JCI Insight 2024 doi: 10.1172/jci.insight.167457
- Beckers L. et al., Clin Immunol 2024 doi: 10.1016/j.clim.2024.109894
- Hoeks C. et al., Eur J Immunol 2024 doi: 10.1002/eji.202350544

For an up-to-date list visit:

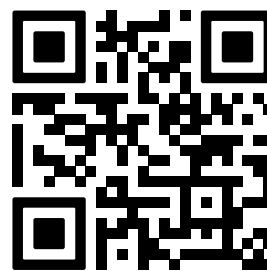
www.uhasselt.be/en/aparte-sites-uhasselt-en/flow-cytometry-unit#anch-981-key-publications



COORDINATION

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