ACCELA hands-on workshops

Diamant hall, corner 1

ACCELA Lunch workshop, Sunday, 3.10., 12:40

Spectral flow cytometry, what else?

ACCELA / Cytek Biosciences educational workshop, presented by Marta Brewińska-Olchowik, PhD

With an increasing number of parameters to analyze with a dearth of analytical solutions, Cytek provides a plethora of tools and solutions to efficiently complete the path from experiment design to high-quality interpretable results. This includes to show our technology, our fluorochromes, foundation of the panel design and with the reagents. Learn how we can use the available reagents in the lab while taking advantage of the new technologies to achieve high resolution spectral flow cytometry.

LUNCH WORKSHOP, Monday, 4.10., 12:30

Single-cell Polyfunctional Immune Profiling paves the way for successful cellular therapies

ACCELA / IsoPlexis *educational workshop, presented by Sandra Biewers*

Chimeric antigen receptor (CAR) T cell therapy has already paved the way for successful immunotherapies to fight against liquid tumors and is quickly expanding to solid tumors. Nevertheless, the biggest challenges are how to evaluate the quality of CAR-T cells and how to predict their in vivo behaviors once reinfused into a patient. In this workshop, we will review how Isoplexis' single-cell polyfunctional profiling technology, through the measurement of the polyfunctional strength index (PSI) of pre-infused CAR-T products, is used for:

- CAR-T products characterization
- Predicting clinical outcome of patients after receiving CAR-T cell treatment (biomarker)
- Cell therapy manufacturing process optimization (quality metric)

In a second part we will have a practical session to demonstrate how Isoplexis Data analysis Software, Isospeak, combined with full automation, provides a powerful solution to access functional biology thanks to intuitive data mapping visualizations.

Sunday, 3.10., 14:35

Kinetic cytometry session: Analyse cell-type-specific, long-term ATP changes like never before!

ACCELA / Sartorius educational workshop, presented by Riccardo Pasculli

Cancer cells exhibit metabolic rewiring to support increased rates of proliferation and survival in the tumor microenvironment. This phenomenon is recognized as a hallmark of cancer. Traditional techniques for measuring metabolic changes often:

- Cannot distinguish cell-type-specific metabolic changes in complex co-culture models
- Do not integrate confirmation of cell morphology
- Analyze an endpoint, rather than perform kinetic evaluation
- Do not incorporate physiologically relevant environment conditions

The InCucyte ATP Assay is an end-to-end solution consisting of instrumentation, software, and reagents that enables direct analysis of ATP facilitating the understanding of metabolic change in cancer cells. Evaluate metabolic changes like never before!

Sunday, 3.10., 16:15

Spectral flow cytometry session: The power of Autofluorescence Extraction using full spectrum profiling

ACCELA / Cytek Biosciences educational workshop, presented by Marta Brewińska-Olchowik, PhD

All about why extracting autofluorescence can and ultimately improve data resolution. Learn how to:

- Define and understand sources of autofluorescence
- Understand where autofluorescence signals are detected and how to capture them
- Learn how to extract autofluorescence to improve resolution.

Monday, 4.10., 9:10

NanoView: Purification-free characterization of extracellular vesicles and viruses

ACCELA / NanoView Biosciences educational workshop, presented by Andrew Malloy

NanoView technology push one step forward the characterization of exosomes and extracellular vesicles. The fully automated platform provides multi-level and comprehensive measurements for exosome size analysis, exosome count, phenotype, and biomarker colocalization. Once bound to the surface of the ExoView chip each individual exosome can be sized, counted and characterized in terms of protein expression. Fluorescent antibodies can be added (in 3 channels so that up to 4 proteins can be measured on individual exosomes with single-molecule sensitivities meaning that even the smallest of exosomes and can be detected and characterized. Exosomal cargo can also be detected through the application of cargo protocols to detect proteins not expressed on the surface of exosomes.

Monday, 4.10., 9:50

Spectral sorting session: Full Spectrum Profiling (FSP) let you see it, now Aurora CS (Cell Sorter) will let you sort it!

ACCELA / Cytek Biosciences educational workshop, presented by Marta Brewińska-Olchowik, PhD

The Full Spectrum Profiling (FSP™) technology is fueling the Cytek® Aurora CS, a new cell sorter that takes full advantage of this full spectrum approach, and combines that with all the sorting capabilities you have come to expect in a high-capacity sorter. Learn how Aurora CS can help take your research to the next level by harnessing the power of Full Spectrum Profiling (FSP™); to isolate and further characterize populations of interest to gain deeper insights into the biology.

Monday, 4.10., 11:00

Cell sorting session: Sorting of T-Cells from a heterogenous population of lyophilized cells

ACCELA / NanoCellect educational workshop, presented by William Alaynick, PhD

Veri-Cells are lyophilized human cells developed by BioLegend. Designed for long term stability, a scatter profile similar to fresh cells, and validated with more than 150 markers, Veri-Cells can be used to monitor data quality and aid with reproducibility in multi-center and longitudinal studies. In addition, these cells can be used in substitution of precious samples for routine checks in your experimental setup. Although not meant to replace specific samples when doing antibody titrations or instrument optimization, they can definitely help check or verify reagent and instrument performance. Furthermore, every lot of Veri-Cells is analyzed with a select number of phenotyping markers to ensure that the cell populations/marker staining is within the expected frequency, and reference values are reported with the cells Certificate of Analysis. Here, we demonstrate that Veri-Cells serve as a valuable tool for demonstrating the efficiency and precision of the WOLF G2 and N1.

Monday, 4.10., 14:00

Cell sorting session: sterile, gentle plating of cells for cloning.

ACCELA / NanoCellect educational workshop, presented by William Alaynick, PhD

There are two cloning workflows can benefit from sterile, gentle, zero cross-contamination workflows: Cell Line Development for the production of biologics, and stem cell work that uses embryonic or induced pluripotent stem cells. In this demonstration we will show how cells can be sorted and plated in a sterile, aerosol-free workflow that uses a completely disposable fluidics set. Because of this disposability, nutrient-rich media can be used without fear of microbial contamination of the cell sorter. Furthermore, small volumes of

sheath fluid are needed allowing for the use of otherwise prohibitively expensive growth factors or artificial serum replacements.

Monday, 4.10., 14:50

Spectral flow cytometry session: Creating efficiency in the clinical lab with full spectrum cytometry – Northern Lights CLC (CE IVD)

ACCELA / Cytek Biosciences educational workshop, presented by Marta Brewińska-Olchowik, PhD

By enabling deeper biological insights from each sample, the Northern Lights-CLC platform improves efficiencies across the entire sample to answer workflow for immunophenotyping, hematology and more. Learn how to:

- Succeeding with validated conventional cytometry assays on full spectrum flow cytometers
- Expanding assays for use with full spectrum flow cytometers
- Generating data from bone marrow samples from healthy donors and donors with acute myeloid leukemia (AML).

Monday, 4.10., 16:00

Imaging flow cytometry session: Detection of Extracellular Vesicles and virus using the Amnis ImageStreamX Mk II

ACCELA / Luminex corporation educational workshop, presented by Dr. Peter Rhein

High Gain mode for the Amnis ImageStreamX Mk II Flow Cytometer is designed to detect small, dim particles such as extracellular vesicles (EVs) and viruses. In High Gain mode, the time-delay integration (TDI) CCD camera at the heart of the Amnis Technology is adjusted to a higher gain setting to maximize signal while minimally increasing the noise, allowing for increased sensitivity and increased signal from small particles. In addition to increasing the gain, the object detection thresholds and masking have been adjusted to better identify small objects like EVs and viruses. High Gain mode is designed to work at 60X and at slow speed. With the addition of a 400 mW 488 nm laser and an increase in photonic sensitivity, even more EVs and virus particles can be detected.

Tuesday, 5.10., 9:10

Spectral flow cytometry session: Get to know our new Cytek Automated Sample Loader and SpectroFlo 3.0 software

ACCELA / Cytek Biosciences educational workshop, presented by Marta Brewińska-Olchowik, PhD

The new ASL / Loader 2.0 has officially launched! To run this new loader, a new version of the software, SpectroFlo 3.0. had been released. In addition to operation of our new ASL, SpectroFlo 3.0 comes with a host of other improvements. Learn about:

- How this new loader delivers expanded capabilities
- The new features introduced in SpectroFlo 3.0

Tuesday, 5.10., 9:50

Kinetic cytometry session: Analyze your adherent or non-adherent heterogenous cells with IncuCyte live-cell analysis

ACCELA / Sartorius educational workshop, presented by Riccardo Pasculli

Considerable heterogeneity exists in even the simplest of cell systems. With the IncuCyte and Cell-by-Cell Analysis module, scientists can quantify the process and effects of cellular heterogeneity in real-time in living cells – inside your incubator. Study the dynamic, phenotypic changes of cell subsets during activation or differentiation, or understand how cell subsets respond to treatments using our unique and accessible approach to live-cell imaging and analysis. The IncuCyte live-cell analysis system, Cell-by-Cell analysis software module, and IncuCyte reagents provide a new, enabling, end-to-end solution for analyzing heterogeneous cultures at 96-well throughput.

Tuesday, 5.10., 11:00

Imaging flow cytometry session: The benefits of Artificial Intelligence for the image analysis of new Immuno oncology applications

ACCELA / Luminex corporation educational workshop, presented by Dr. Peter Rhein

Imaging flow cytometry (IFC) combines the statistical power of flow cytometry with microscopy-imaging content within one system. The special features of this technology are based on the fact that it is not only capable of measuring the intensities of fluorescence associated with cells, but it also provides images of every cell at the same time. To optimize the manual image analysis, we have now added Artificial Intelligence (AI) and Machine Learning (ML) to the IDEAS software. ML can differentiate populations using a super feature that maximally separates each manually selected truth population from the other. In contrast, the AI module is using deep learning algorithms that “learn” directly and automatically from a large set of labeled images by attempting to mimic the activity of human brains. In this presentation, we will show the advantage of AI for the quantification of cell-cell interactions between T cells and Antigen Presenting Cells by including criteria to identify subtle morphological differences between cell conjugates.