



1st Vienna ISAC-LETF Cytometry Workshop September 2-4, 2022

PROGRAM

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Silver Sponsors





Organizers:

Andreas Spittler, Medical University of Vienna, Austria
Tomas Kalina, Charles University, Prague, Czech Republic
Zosia Maciorowski, Chair ISAC Live Education Delivery
Awtar Krishan, Co-Chair ISAC Live Education Delivery

Faculty:

Andrew Filby, University of Newcastle, UK Jens Fleischer, Becton Dickinson, Europe Maria Jaimes, Cytek Biosciences, USA Tomáš Kalina, Charles University Prague, Czech Republic Sebastian Lunemann, Cytek Biosciences, USA Zosia Maciorowski, Institut Curie, Paris, France Florian Mair, Institute of Molecular Health Sciences, Zurich, Switzerland Henrik Mei, DRFZ, Berlin, Germany John Nolan, Scintillon Institute, San Diego, USA Michaela Novakova, Charles University, Prague, Czech Republic Geoffrey Osborne, Becton Dickinson, USA John Quinn, Flowjo, Becton Dickinson, USA Alexander Tolios, Medical University Vienna, Austria Paul Wallace, Professor Emeritus, Roswell Park Cancer Institute, New York, USA Nicole Weit, Beckman Coulter, Europe

Social dinner on Saturday evening



On **Saturday at 8 p.m.** there will be a joint dinner at a wine tavern (Heuriger). We will reach it with a short tour (53 minutes) along the famous Ringstrasse in Vienna with a tram that has been rented especially for this purpose. The tram leaves its departure point <u>PUNCTUALLY at 7 p.m. !!!</u> Unfortunately, we cannot wait for those who arrive too late. Staff will accompany you in groups to the departure point.

We would be delighted if as many of you as possible took part!

Lecture Hall Center, Level 8

III IMPORTANT III Due to the CoVID-19 rules of the general hospital, it is not allowed to enter the area of the general hospital from the lecture hall center



To get to the Core Facility (CF), you will be accompanied by a staff member

FRIDAY, SEPTEMBER 2nd, 2022

PLENARY SESSION

- 8:30 9:00 **Registration and Welcome** Andreas Spittler, Tomas Kalina and Z. Maciorowski
- 9:00 9:45 **Basics of Instrumentation** *Zosia Maciorowski*
- 9:45 10:10 Basics of Multicolor Flow Cytometry Zosia Maciorowski
- 10:10 10:30 **Compensation** *Michaela Novakova*
- 10:30 10:45 **Coffee break**
- 10:45 11:30 Basic Data Analysis John Quinn
- 11:30 12:15 Panel Design Tools Florian Mair
- 12:15 12:45 **Sponsors Snapshots** Becton Dickinson, Beckman Coulter, Cytek Bioscoences, Standard Biotools
- 12:45 13:45 Lunch break
- 13:45 14:30 Panel Design from 10-50 Parameters a Practical Guide Florian Mair
- 14:30 14:50 Antibody Validation and Benchmarking Tomas Kalina
- 14:50 15:15 **Immune Monitoring** *Michaela Novakova*
- 15:15 16:00 Advanced Data Analysis Alexander Tolios
- 16:00 16:15 Coffee break
- 16:15 17:00 How to Assess Your Data (online) Maria Jaimes
- 17:00 17:45 **MRD, Leukemia Lymphoma** *Paul Wallace*

SATURDAY, SEPTEMBER 3rd, 2022

PARALLEL TRACKS: Lectures and Practical Sessions

Multicolor Flow Cytometry Zo	osia Maciorowski (ZM), Florian Mair (FM), Michaela Novakova (MN),
Andy Filby	y (AF), Sebastian Lunemann(SL), Knut Petkau (KP), Tomas Kalina (TK)
Cell Sorting	Geoff Osborne (JO), Jens Fleischer (JF), Tillman Vollbrandt (TV)
High Dimensional Data Analysis	Alexander Tolios (AT), John Quinn (JQ), Nicole Weit (NW)
Clinical Flow Cytometry	Paul Wallace (PW), Tomas Kalina (TK), Michaela Novakova (MN),
	Matthias Eidkum (ME)

	Multicolor track			Cell Sorting		High Dimensional Data Analysis		Clini	cal		
	25	Practica	30	35	Cell Sorting lecture Geoff Osborne		35 Cell Sorting lecture 29 Geoff Osborne		29		28
9:00-10:30	Bas Flov (ZM	ic Multi v Cyton , AF, TK	color netry , KP)	Practical: Panel Design (FM, MN)	32 Basi	32 CF Practical 1: Basics of Cell Sorting		High Dimensional Case studies: Data Analysis and Lympho (AT, JQ)		:: Leukemia oma (PW)	
	26		CF			(GO, JF, TV)					
10:30-10:45						Cof	fee	_			
10:45-12:15	25		30	35			CF		29		28
10.45 12.15	Practical: Basic Multicolor Flow Cytometry (ZM, AF, KP)		il: color netry KP)	Practical: Panel dDesign (FM, TK)	Ad	Practical 2: lvanced Sor (GO, JF)	ting	High Di Data (A	imensional Analysis T, JQ)	Clinical Pane Example developm	el Design – of panel ent (MN)
	26		CF								
12:15-12:45	Vendor mini workshop at instruments:										
Co				Color codi	ng:	Lecture	Workshop	Hands-On	Sponsors		

9:00 – 10:30 Multicolor Track

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Group 1: Practical - Basics of Multicolor Flow Cytometry

	BD FACSSymphony A1	KR 25	
	BD FACSFortessa	Core Facility (CF)	
	Cytek Aurora	KR 30	
	Beckman Coulter CytoFLEX LX	KR 26	
Group 2: Practical - Pa	anel Design	KR 35	
Cell Sorting			
9:00- 9:30: Cell Sortin	ng Lecture	KR 32	
9:30-10:30: Practical	1 – Basics of Cell Sorting		
ARIAFusion		Core Facility (CF)	
Cytoflex SRT		KR 32	
High Dimensional Data Analy	High Dimensional Data Analysis		
<u>Clinical</u> - Case Studies Leuker	mia Lymphoma	KR 28	

10:30 - 10:45 Coffee break

10:45 – 12:15 Multicolor Track

Group 1: Practical - Panel Design	KR 35				
Group 2: Practical - Basics of Multicolor Flow Cytometry					
BD FACSSymphony A1	KR 25				
BD FACSFortessa	Core Facility (CF)				
Cytek Aurora	KR 30				
Beckman Coulter CytoFl	LEX LX KR 26				
Cell Sorting – Practical 2: Advanced sorting	Core Facility (CF)				
High Dimensional Data Analysis	KR 29				
<u> Clinical</u> – Clinical Panel Design	KR 28				

12:15 – 12:45 Sponsors Mini-Workshops at Instruments (see last page)

12:45 – 13:45 Lunch break

	Multicolor track	Cell Sorting	High Dimensional Data Analysis	Clinical
13:45-15:15	35 Panel Design - Troubleshooting (FM, MN, SL)	CF Practical 3: Advanced Cell Sorting gating strategies for high dim panels + hyperfinder	29 Commercial Softwares (FloJo/JQ Cytobank/NW)	Instrument QC and Standardization (Tomas Kalina) 28 Assay Validation (Paul Wallace)
15.15.15.20		(GO, JF)		(Tomas Kalina)
15:15-15:30		Conee		
15:30-17:00	35 High Dimensional Data Analysis (John Quinn)	CF Practical 4: Advanced Cell Sorting microparticles (GO,JF)	29 High Dimensional Data Analysis in "R" (AT)	Primary Immunodeficiency (Tomas Kalina) 28 IVDR in Clinical Cytometry (Tomas Kalina)
17:00-17:30	Ven	dor mini workshop a	t instruments	

13:45 – 15:15	<u> Multicolor track</u> – Panel Design Troubleshooting	KR 35
	<u>Cell Sorting</u> – Practical 3: Advanced cell sorting gating strategies	Core Facility (CF)
	<u>High Dimensional Data Analysis</u> – Commercial Softwares	KR 29
	Clinical – Instrument QC and Standardization / EuroFlow	KR 28
15:15 – 15:30	Coffee break	
15:30 - 17:00	Multicolor track – High Dimensional Advanced Data Analysis	KR 35
	Cell Sorting – Practical 4: Microparticles	Core Facility (CF)
	High Dimensional Data Analysis: R	KR 29
	<u>Clinical</u> – IVDR in Clinical Cytometry	KR 28

17:00 – 17:45 Sponsors Mini-Workshops at Instruments (see last page)

SUNDAY, SEPTEMBER 4th, 2022

PARALLEL MODULES: Lecture and Practical

Extracellular Vesicles	John Nolan
Imaging Flow Cytometry	Andy Filby
Spectral Flow Cytometry	Maria Jaimes, Sebastian Lunemann, Knut Petkau
Clinical Flow Cytometry	Paul Wallace (PW), Tomas Kalina (TK), John Quinn (JQ), Nicole Weit (NW)
Mass Cytometry	Henrik Mei (HM), Axel Schulz (AS)

	Imaging flow cytometry	Extracellular Vesicles	Spectral Flow Cytometry	Mass cytometry	Clinical
9:00- 9:45	Lecture: Imaging Flow Andy Filby 29	Lecture: Extracellular Vesicles John Nolan 26	Lecture: Full Spectrum Flow Cytometry Maria Jaimes 30	Lecture: Mass Cytometry Henrik Mei 28	27 25
9:45-11:15	CF Practical: Imaging Flow Cytometry session A	26 Practical : Extracelllular Vesicles session A	30 Practical: Spectral Flow session A	28 Do's and don't in mass cytometry (HM, AS)	Practical Basic Multicolor Flow Cytometry on BD and BC (ZM, TK)
11:15-11:30	Coffee				
	CF	26	30	28	25
11:30-13:00	Practical: Imaging Flow Cytometry session B	Practical: Extracelllular Vesicles session B	Practical: Spectral Flow session B	Do's and don't in mass cytometry (HM, AS)	Data analysis for clinical flow (round table TK, PW, JQ, NW)
13:00 13:15	Closing				

9:00 – 11:15 Lectures and practical modules

9:00 - 9:45 *Lectures*

	Imaging Flow Cytometry	KR 29
	Extracellular Vesicles	KR 26
	Spectral Flow Cytometry	KR 30
	Mass Cytometry	KR 28
9:00 - 11:15	Clinical Basics Multicolor Flow Cytometry	
	FACSSymphony A1 (Becton Dickinson)	KR 25
	DxFLEX (Beckman Coulter)	KR 27
9:45 – 11:15	Practical Sessions A	
	Imaging Flow Cytometry (AMNIS, Luminex)	Core Facility (CF)
	Extracellular Vesicles (CytoFLEX LX, BC)	KR 26
	Spectral Flow Cytometry (Aurora, Cytek)	KR 30
	Mass Cytometry (CyTOF, Fluidigm)	KR 28

11:15 – 11:30 Coffee break

11:30 – 13:00 Practical Sessions B (this is a repeat of Session A)

Imaging Flow Cytometry (AMNIS, Luminex)	Core Facility (CF)
Extracellular Vesicles (CytoFLEX LX, BC)	KR 26
Spectral Flow Cytometry (Aurora, Cytek)	KR 30
Mass Cytometry (CyTOF, Fluidigm)	KR 28
Data Analysis for Clinical Flow	KR 25

13:00 - 13:15 Closing

MINI-WORKSHOP DESCRIPTIONS



Using the straight down sorting mode on the CytoFLEX SRT for single cell deposition in 384-well plates.

Brief description: The CytoFLEX SRT offers the possibility to use straight down sorting for the deposition of single cells into a 384-well plate. This session is aimed to show how easily and quick the system can be set up to use this sort mode.

DxFLEX - Beckman Coulter's Next Generation Clinical Flow Cytometer

In this session you will learn about the advantages of the implemented Avalanche Photodiode detector technology and how you can overcome the limitations associated with PMT based systems (incl. Gain independent Compensation and simplified standardization of instrument settings).

BECTON DICKINSON, KR25 👸 BD

Have you ever looked for hints and tips to maximize your collectable data from a single sample and for that to build a multicolor FACS panel? If you ever wondered how easy it can be to establish and run a multiparameter FACS-panel in modern times of research, come and visit Becton Dickinson's Workshop at ISAC-LETF. With our smallest Symphony family member, the A1, you can already run panels with up to 16 biomarkers and run perfectly stable and precise Flow-experiments. Equipped with 4 high-power lasers and a selection of 19 detectors, the A1 brings high resolution in a convenient package. Of note, the A1 can also be equipped with a Small-Particle-Detector (SPD). We will guide you with well-developed software tools through panel design, experiment run and sample analysis.

We are looking forward supporting you to enwiden your horizon for flow-based experiments.

CYTEK BIOSCIENCES, KR30

Ride the Spectral Unicorn

Learn how easy it is to manage a Full Spectrum Profiling Instrument and leverage your Flow experiments to the next level. Walkthrough of the Workflow how to setup, run and analyze on the Cytek[®] Aurora. See the advantage of Autofluorescence extraction and how easy it is to use dyes that are not compatible on legacy instruments.

STANDARD BIOTOOLS / Fluidigm, KR28



Tired of designing and validating your flow cytometry panels? Want to optimize your time and get the most out of your precious samples? Meet our new range of ready-to-use 45+ marker panels for in-depth profiling of T, B, NK and myeloid cells starting from only 300 μl of whole blood or 3 x 10^6 of PBMC.