CONTENT

GENERAL INFORMATION

DATE / CONFERENCE VENUE

September 21 – 24, 2019

Hotel Jezerka
Seč-Ústupky, Czech Republic
www.jezerka.cz

BOARD / REFRESHMENT

Coffee breaks are included in the registration fee and will be served in the foyer of the conference halls.

Lunches can be purchased for 250 CZK via the conference secretariat. Lunch will be served in the hotel restaurant.

Welcome drink (Saturday, 21.9., 19:00)
The Czech Society for Analytical Cytometry invites participants to a welcome party, which is covered by CSAC Society (not from the registration fee). Admission is free to participants.

Social event (Sunday, 22.9., 20:00)
Free ticket for a social event will be received by CSAC members only.
Tickets to the event for non-members can be purchased for 400 CZK via the registration form.

Tickets to the social event and welcome drink for an accompanying person can be purchased for 1200 CZK via the registration form.

Dinner on Monday 23.9. is not organized by the conference. Due to the number of participants, we recommend you to arrange a dinner in advance via the hotel reception, where you will be able to purchase a ticket for Monday dinner in advance.

ORGANIZING COMMITTEE

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INVITED SPEAKERS

Jean-Pierre Bourqin
Abteilung Onkologie, Universitäts-Kinderspital Zürich
Comprehensive Cancer Center Zurich
Children's Research Center Kinderspital Zürich
Life Science Zürich

Presentation:
Towards personalized approaches for relapsed and refractory childhood leukemia

Jean-Pierre Bourquin is the elected chair of the largest division in pediatric Hematology/Oncology in Switzerland and directing a large translational research effort within the Comprehensive Cancer Center Zurich at the at the Children's Research Centre at the University Children's Hospital in Zurich. He is a physician scientist with an active clinical and translational research program. Since 2019, he chairs the resistant disease committee of the international BFM Study Group, which is the central organization in Europe that leads the development of new treatments for childhood leukemia and have initiated a Scientific Working Group for functional precision hematology for the European Society of Hematoloty in 2019.

His research focus is on transcriptional dependencies and mechanisms of drug resistance in childhood acute lymphoblastic leukemia (ALL). Over the last decade the Bourquin group has built and characterized a large repository of patient-derived xenografts within the framework of our international clinical studies. This constitutes a comprehensive model and a renewable resource to address mechanistic research directly in the relevant cancer cells. Using this model they have developed a functional screening platform for precision medicine that will be implement in clinical trials within the international BFM study group (application of drug response profiling to individualize treatment components for relapsed and refractory ALL). Using this model, they are dissecting different aspects of the biology of resistant disease. We have a program to define the leukemia microenvironment, are dissecting the function of relevant fusion transcription factors such as TCF3-HLF, which defines a paradigm of resistant ALL and highjacks a stem cell program driven by the master regulator transcription factor HLF, and are exploring new phenotypes that emerge from our comprehensive modelling approach. Relevant for this application, we have identified a signature that is highly associated with de novo resistance to chemotherapy in ALL (persistence of minimal residual disease). A key feature is the aberrant expression of the cell surface protein gp180, also called Vanin-2 or VNN2. This gene is only expressed in the hematopoietic system and markes a very early fetal stem cell compartment that also expresses HLF. VNN2 is also expressed in subsets of cord blood and adult

hematopoietic stem cells, and in a later wave in differentiated myelomonocytic cells and lymphoid cells. In a prospective study, we confirm association of VNN2 by flow cytometry with MRD persistence in different genetic subgroups at risk. Given the association of VNN2 with stemness and inflammation, we seek to identify the underlying program with the aim to identify common actionable principles in resistant disease.

Hyun-Dong Chang
Schwiete-Laboratory for Microbiota and Inflammation, Deutsches Rheuma-Forschungszentrum (DRFZ) Berlin, a Leibniz Institute, Berlin, Germany

Presentation:
T cells, Microbiota, Chronic Inflammation

Hyun-Dong Chang studied biology at the Free University Berlin and at the University of California, San Diego (UCSD). During his PhD thesis at the German Rheumatism Research Center (DRFZ) Berlin, he studied the regulation of cytokine expression in T cells. His research focused on the establishment and maintenance of a functional memory in T cells, in particular the molecular basis and prerequisites of epigenetic and functional imprinting of T cells for cytokine expression and the molecular adaptations of T cells to chronic inflammation allowing them to function and persist in inflamed tissue. He is the scientific leader of the flow cytometry core facility of the DRFZ and past president of the German Society for Cytometry (DGfZ). As the group leader of the Schwiete-Laboratory for Microbiota and Inflammation at the DRFZ, his current research activities focus on understanding the role of the intestinal microbiota in the prevention, triggering and maintenance of chronic inflammation.

Andrea Cossarizza
Director of the School of Specialization in Clinical Pathology, University of Modena and Reggio Emilia School of Medicine, Italy
President of the ISAC

Presentation:
Single cell analysis in monitoring the immunotherapy of cancer

Professor of Pathology and Immunology at the University of Modena and Reggio Emilia and ISAC President, has been working on HIV infection, aging and longevity, mitochondria and apoptosis, and on these topics has published more than 320 papers in peer-reviewed journals.

He has >30 years of experience in Immunology, and in particular in the development and use of original cytometric approaches for sophisticated and innovative analysis. His longstanding research commitments are centered into identifying the molecular and cellular basis of the involvement of the immune system in several diseases and infections, such as HIV/AIDS, hepatitis, and sepsis. His interests also embrace different physiopathological conditions, that include those of neurodegenerative origin (multiple sclerosis, Alzheimer disease, amyothrophic lateral sclerosis) or human aging, either physiological (with the model of healthy centenarians) and pathological (Down's syndrome), along with inflammaging. During the past decade he has built expertise in the clinical application of new methods for the identification of rare cellular subsets to patients affected by HIV infection and to patients undergoing liver transplantation, as well as in patients suffering of multiple sclerosis or patients during septic shock. Such methods are now allowing a new and fine characterization of the functional activities of these cells. Prof. Cossarizza has published more than 300 full papers on peer-reviewed international journals, authored >90 papers or chapters on books or conference proceedings and presented >450 communications to conferences and meetings. His papers have received >19,000 citations.

Paula C. Fernandez
FAMH Hämatologie, Zürich, Switzerland

Presentation:
T-cell Lymphomas

After studying Medicine and Biology in Switzerland, she first focused on basic research working in cell signaling and gene regulation before changing to a clinical diagnostic laboratory. Currently she heads the Flow/Stem-cell laboratory at the Kantonsspital Aarau, Switzerland, which provides diagnostic services in hemato-oncology and cryopreserves autologous stem cell transplants. In addition, she is active in teaching clinical flow cytometry nationally and internationally, was involved in the national, and currently serves the European Society for Clinical Cell Analysis as president. She is interested in the standardization of immunophenotyping in diagnostics and an affiliated laboratory of the EuroFlow Consortium.

Zdeněk Hel
Department of Microbiology, The University of Alabama at Birmingham, USA

Presentation:
Altered Myelopoiesis in Infection and Cancer

Brian Husband
Department of Integrative Biology, College of Biological Science, University of Guelph, Ontario Canada
Professor and Associate Dean (Academic)

Presentation:
Advances in plant population biology through flow cytometry

Scientific interests: plant population dynamics, function and evolution of plant reproductive systems, polyploidy, pollination, mating systems, hybridization, DNA barcoding, conservation biology. Pioneered use of flow cytometry for studying formation and evolutionary dynamics of polyploids using field and experimental approaches.
Favourite cytometry applications: pollen quality, plant siring success, population cytotype structure using genome size

Kanutte Huse
Department of Cancer Immunology, Oslo University Hospital, Norway
Head engineer at the Flow Cytometry Core Facility, responsible for their CyTOF2 mass cytometer

Presentation:
Immune profiling of lymph nodes from breast cancer patients by mass cytometry

She graduated in 2011 and her PhD work was on the role of TGF-β growth factors in normal and malignant B cells. As a postdoc she worked on B-cell signaling and spent a year in the lab of Jonathan Irish, Vanderbilt University, to learn mass cytometry technology and data analysis. In her current work she uses high-dimensional cytometry, phospho-flow and imaging mass cytometry to investigate tumor-infiltrating immune cells in lymphoma and other cancer types.

Shyamala Maheswaran
Massachusetts General Hospital, Boston, USA

Presentation:
Epithelial to Mesenchymal Transition: A dynamic Process Contributing to Genomic Diversity

Dr. Shyamala Maheswaran's research is focused on defining the molecular mechanisms that drive breast cancer progression and metastasis. Breast cancer, initially confined to the primary site, eventually spreads to distal sites, including lung, liver, bone and brain, by invading into the bloodstream. Upon reaching these distal sites, the tumor cells continue to grow and evolve well after removal of the primary tumor resulting in overt metastasis and disease recurrence, the leading causes of cancer-related deaths. Using cell culture and mouse models and patient derived tissues and circulating tumor cells (CTCs) enriched from breast cancer patients' blood, Dr. Maheswaran's laboratory characterizes the contribution of oncogenic cues, tumor microenvironment-derived signals, epithelial to mesenchymal transition and tumor heterogeneity to breast cancer progression and therapeutic responses. She collaborates closely across several disciplines including Clinicians and Engineers at MGH and is currently the Scientific Director of the Center for Cancer Risk Assessment at the Massachusetts General Hospital (MGH).

Ester Mejstrikova
CLIP, Prague, Czech Republic

Presentation:
Lineage plasticity of acute leukemias

Ester Mejstrikova studied Medicine and PhD in Immunology in Prague at 1st and 2nd Faculty of Medicine. In 2001 she joined CLIP (Childhood Leukemia Investigation Prague) group as medical student. She focused on problematic of minimal residual disease assessment and mechanisms of bone marrow failure in childhood. She described lineage switch phenomenon towards monocytic lineage in B cell precursor leukemia.

Bruno Paiva
Flow Cytometry Core, CIMA LAB diagnostics, University of Navarra, Pamplona, Spain

Presentation:
Flow cytometry for comprehensive monitoring of multiple myeloma

Bruno Paiva is a research fellow of the Departments of Hematology and Immunology at the Clinica Universidad de Navarra (CUN) and Centro de Investigaciones Medicas Aplicadas (CIMA), Pamplona, Spain. Dr. Paiva is also the Director of the Flow Cytometry Core, and Scientific Coordinator of CIMA LAB diagnostics, the Laboratory Diagnostic Core of the University of Navarra. He graduated in Pharmaceutical Sciences at the University of Coimbra, Portugal, in 2007. Then, he spent a training period in Prof. Alberto Orfao's laboratory focusing on immunophenotypic in acute myeloid leukemia. Afterwards, he joined the Immunopathology laboratory in the Hematology Department at the University Hospital of Salamanca, and started a Ph.D program under the supervision of Prof. Jesús F. San Miguel. He received his Ph.D in 2011 from the Medical School of the University of Salamanca, where he studied the clinical value of multiparameter flow cytometry immunophenotyping of plasma cells in multiple myeloma patients. Dr Paiva's main area of work is on multiparameter flow cytometry evaluation of hematological malignancies. His main research interests focus on improving the differential diagnosis, risk stratification, and monitoring of patients with hematological malignancies, particularly monoclonal gammopathies (MGUS, smoldering and symptomatic multiple myeloma, Waldenström's macroglobulinaemia, or amyloidosis) but also acute leukemias and lymphoproliferative disorders. Dr. Paiva is an author or co-author of several publications in peer-reviewed journals.

Josef Spidlen
Flowjo, Ashland, OR, USA

Presentation:
Recent advancements in computational cytometry and making those accessible to bench top scientists

Josef Spidlen received his MSc in Computer Science and his PhD in Biomedical Informatics from the Charles University in Prague. His career includes 5 years as a researcher at the Institute of Computer Science, Academy of Sciences of the Czech Republic, and over a decade as a scientist at the Terry Fox Laboratory, BC Cancer Agency in Vancouver, Canada. Josef developed many R packages and dozens of GenePattern modules for computational flow cytometry data analysis. He also led the development of FlowRepository for over 5 years;

he is an active member of ISAC, an ISAC Marylou Ingram Scholar and the first author of several cytometry standards including FCS, Gating-ML and MIFlowCyt. In 2016, Josef joined FlowJo to help bring the advancements of computational biology to benchtop scientists by leading a team to drive innovation in FlowJo products. He was responsible for implementing algorithms, data handling and analytical capabilities of FlowJo as well as FlowJo's single cell sequencing data analysis tool SeqGeq. Currently, FlowJo is integrated in BD as the „Informatics Platform" of BD Life Sciences. As of February 2019, Josef has been promoted to the Senior Director, R&D of the Informatics platform leading engineering, bioinformatics, quality assurance, design and development teams to deliver science-first informatics solutions in flow cytometry and single cell multi-omics. He is accountable for setting the technical vision and direction for FlowJo's portfolio, execution on the Informatics strategy, delivering FlowJo's suite of cloud and desktop applications as well as driving development activities for new technology, strategy and computational approaches in Informatics. In his lecture, Josef will introduce recent advancements in computational cytometry and discuss how those can be used in a variety of both commercial and open source tools widely available to clinicians and researchers without computer programming skills.

Stavros Stavrakis
Department of Chemistry and Applied Biosciences at ETH Zurich, Switzerland

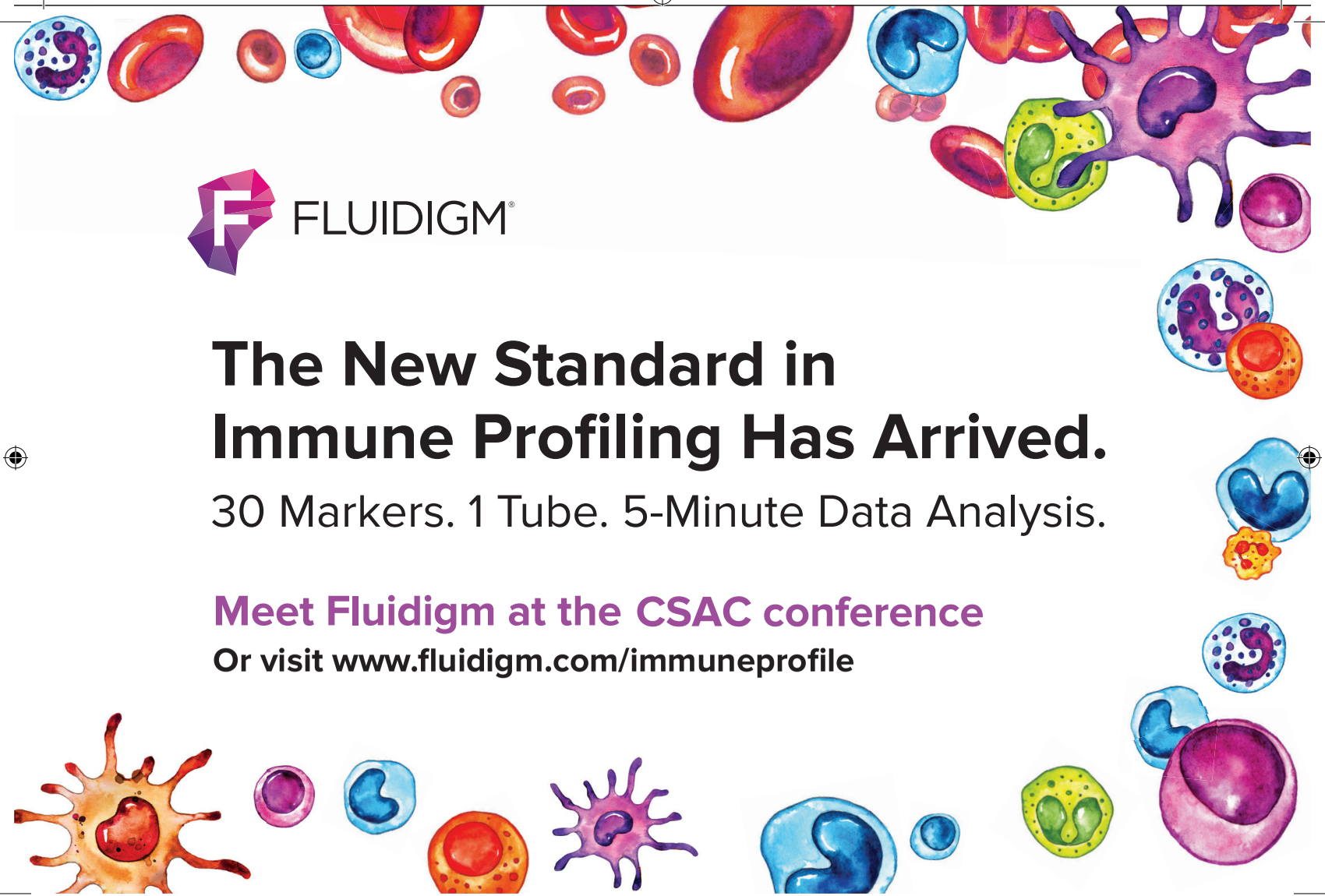
Presentation:
Optofluidic platforms for high-throughput and high precision measurements in flow cytometric detection

Stavros is currently a Senior Scientist in the deMello group in the Department of Chemistry and Applied Biosciences at ETH Zurich. He received his B.Sc. in Chemistry and Ph.D in Biophysical Chemistry from the University of Crete (Greece) in 2005. His research was focused on the application of time-resolved vibrational spectroscopies such as FTIR and Raman, applied to enzymatic systems. In 2007 Dr Stavrakis was awarded an Individual Outgoing Marie Curie Fellowship. As a Marie Curie fellow, he spent three years with Prof. Stephen Quake at Stanford University specializing in single molecule biophysics. The focus of his research was to develop new technologies to improve the throughput of current single molecule DNA sequencing platforms. His current research interests are focused on applications of single molecule fluorescence detection, and optofluidics in biology. Currently he has a team of postdocs and students developing novel microfluidic platforms for single molecule enzymology, high-throughput imaging flow cytometry, fast enzyme kinetic analysis, fluorescence lifetime combined with droplet microfluidics and high-throughput microfluidic single-cell screening platforms.

Ondřej Štěpánek
Research group of Adaptive Immunity, Institute of Molecular Genetics, Czech Academy of Sciences, Prague, Czech Republic

Presentation:
T cells, TCR, Signaling, Adaptive Immunity, Immune Tolerance

Ondřej Štěpánek studied molecular biology at the Charles University in Prague and performed his PhD research in immunology at the Institute of Molecular Genetics. He spent more than 4 years as a postdoctoral scientist at the Department of Biomedicine in Basel in the group of Ed Palmer. His research contributed to the understanding how developing T cells discriminate between high-affinity and low-affinity self-antigens in the thymus. In 2016, he established his own group focusing on T-cell fate decisions and analysis of the TCR and other signaling pathways.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LIST OF POSTERS

BOTANY

(P1) DNA replication timing program in barley (*hordeum vulgare*)
Čížková J., Němečková A., Vrána J., Doležel J., Hřibová E.

(P2) Characterization and dissecting the complex nuclear genome of crested wheatgrass by chromosome flow sorting
Said M., Kubaláková M., Karafiátová M., Molnár I., Čížková J., Cabrera A., Vrána J., Doležel J.

CELL BIOLOGY

(P3) Molecular mechanisms of diffuse peritoneal adhesions development
Ambrožová G., Kocurková A., Sandanusová M., Nešporová K., Drmota T., Šafránková B., Kubala L.

(P4) Hypericin in hypoxia: focus on cancer stem-like cells and therapy resistance
Buľková V., Vargová J., Jendželovský R., Fedoročko P.

(P5) A novel long non-coding RNA Miat is associated with Nmyc neuroblastoma status
Feriančiková B., Hraběta J., Černá T., Eckschlager T.

(P6) Lipopolysaccharide from *microcystis aeruginosa* dominated water bloom activates different cell types *in vitro* and *ex vivo*
Goliášová Z., Moosová Z., Ambrožová G., Vašíček O., Hošeková V., Kubala L., Babica P., Šindlerová L.

(P7) Perspectives of mesenchymal stem cell therapy for retinal degenerative disorders
Hermankova B., Bohacova P., Hajkova M., Holan V.

(P8) Detection of disruption of fatty acid synthesis and lipid accumulation in hepatocyte-like cell models
Kabátková M., Fedr R., Vondráček J.

(P9) The impact of loss of the aryl hydrocarbon receptor (AHR) on metabolism and functional properties of human breast carcinoma MCF-7 cells
Karasová M., Fedr R., Ciganek M., Machala M., Matthews J., Vondráček J.

(P10) Functional role of AHR in dioxin-mediated disruption of apoptosis control in a human model of adult liver progenitors?
Krkoška M., Svobodová J., Kabátková M., Hyršlová Vaculová A., Vondráček J.

(P11) CHK1 inhibition facilitates the cooperative anticancer action of platinum-based drugs and trail
Krkoška M., Herůdková J., Paruch K., Nevědělová K., Sova P., Hyršlová Vaculová A.

(P12) Evaluation of membrane bound isforms of adenylate cyclases
Kubala L., Daďová P., Litvinchuck A., Dobler L., Jaroušek R.. Šindelář M., Švenda J., Parůch K.

(P13) Modulation of radiation-induced injury by hyaluronic acid nanoparticles
Lierová A., Pejchal J., Jeličová M., Kašparová J., Korecka L., Bílkova Z., Šinkorová Z.

(P14) Treatment of glioblastoma using superparamagnetic nanoparticles with modified surface
Mareková D., Turnovcová K., Horák D., Kaiser R., Jendelová P.

(P15) Evaluation of targeting and efficacy of nanoparticles-mediated combined cancer treatment
Buociková V., Miklíková S., Ploth K., Tyčiaková S., Majerová K., Smolková B., Matúšková M.

(P16) Resistance to Trypsin/Edta treatment is caused by increased cell adhesion on CPA layers
Medalová J., Černochová P., Bartošíková J., Bláhová L., Vondálová Blanářová O., Zajíčková L.

(P17) Toll-like receptors in prostate cancer carcinogenesis and therapy-resistance
Muresan X.M., Drápela S., Slabáková E., Remšik J., Fedr R., Culig Z., Souček K.

(P18) Characterization of anoikis resistance in mammary cancer clones derived from long lived CTCS
Pícková M., Dvořák V., Fedr R., Souček K.

(P19) KDM5D is associated with neuroblastoma chemoresistance to ellipticine
Podhorská N., Hraběta J., Eckschlager T.

(P20) Non-telomeric function of telomerase complex in pattern recognition receptors signalling driven inflammation of human tissue organoids
Jose S.S., De Zuani M., Buřilová P., Tidu F., Frič J.

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(P21) Electrostimulation of murine embryonic stem cells enhanced cardiomyogenesis
Šafaříková E., Střítеský S., Ehlich J., Omasta L., Salyk O., Vala M., Weiter M., Kubala L., Víteček J.

(P22) NF-kB and NFAT pathways shape mesenchymal stem cell response to PAMPs
Tidu F., De Zuani M., Jose S. S., Bendickova K., Fric J.

(P23) Live-cell analysis of 3D spheroids: label-free & fluorescent cell health reporters
Alcantara S. L., Lovell G., Oliver M., Patel K., Dale T., Holtz N., Endsley E., Trezise D.

(P24) Glioblastoma multiforme-derived cells and their contribution to neovascularization
Turnovcová K., Mareková D., Kaiser R., Herynek V., Jendelová P.

(P25) Role of TROP-2 expression in beta catenin expression and activity in mammary cancer cells
Vacek O., Kryštofová K., Remšík J., Binó L., Beneš P., Souček K.

(P26) Comparison of ALDH expression in huvecs and rabbit endothelial progenitor cells using flow cytometry
Vašíček J., Baláži A., Svoradová A., Tomková M., Chrenek P.

(P27) Time-lapse microscopy of primary chronic lymphocytic leukaemia cells locomotion in response to microenvironmental stimuli
Vondálová Blanářová O., Čada Š., Janovská P., Poppová L., Kotašková J., Pavlová Š., Vališová M., Bryja V.

(P28) Role of CD9 tetraspanin in breast cancer
Kvokačková B., Fedr R., Remšík J., Souček K.

(P29) Development of 3D cultivation model of immortalized human MIHA hepatocytes for evaluation of endobiotic and xenobiotic metabolism
Nevědělová K., Krkoška M., Kabátková M., Nekvindová J., Hyršlová Vaculová A., Vondráček J.

(P30) Revival of chemosensitivity and resistance assay in solid tumors – a single-cell significance evaluation
Šímová M., Drbal K.

(P31) Urban dust and diesel exhaust particles elicit estrogen-like effects on er-dependent gene expression and cell cycle progression
Vázquez-Gomez G., Pivnička J., Machala M., Ciganek M., Hýžďalová M., Karasová M., Vondráček J.

CLINICAL CYTOMETRY

(P32) Does characteristic phenotype for plasma cell leukemia exist?
Bezdekova R., Kralova R., Vsianska P., Penka M., Stork M., Pour L., Rihova L.

(P33) Usefulness of 6-colour multiparameter flow cytometry in canine lymphoma phenotyping
Jeklová E., Levá L., Faldyna M.

(P34) The dysregulation of NK cells and monocyte subpopulations in in the preclinical phase of rheumatoid arthritis.
Prajzlerová K., Kryštůfková O., Hánová P., Hulejová H., Gregová M., Pavelka K., Vencovský J., Šenolt L., Filková M.

(P35) Flow cytometric characterization of lymphoma in dogs from the Chech Republic – A retrospective study
Levá L., Jeklová E., Pichlová B., Faldyna M.

(P36) Analysis of gene expression in CD26+ CML leukemic stem cell population
Smitalová D., Loja T., Čulen M., Herudková Z., Budinská E., Mayer J., Ráčil Z., Romžová M.

(P37) A simple no-wash assay for the detection of tumor nuclei ploidy, phenotype and function followed by unsupervised analysis
Ogan B.M., Drbal K.

DATA ANALYSIS

(P38) Multidimensional data analysis and breast cancer heterogeneity
Fedr R., Remšík J., Navrátil J., Binó L., Slabáková E., Fabian P., Svoboda M., Souček K.

HEMATOLOGY

(P39) High quality multiparametric flow cytometry: seeing the full picture through full spectrum cytometry
Kharraz Y., Gu H., Zhong A., Jaimes M.

(P40) KIRnome analysis for improved transplantation efficiency
Pitule P., Houdova L., Fatka J., Dolejsova M., Kralovcova E., Holubova M., Jindra P.

(P41) The development of erythrocytes populations of hereditary spherocytosis patient identified by flow cytometry in time
Kralova R., Bezdekova R., Sebelova B., Blatny J., Penka M., Rihova L.

(P42) Complex of inosine with cobalt as radiomitigator in irradiation of mice
Tsukanava A., Veyalkina N., Cheshyk I.

IMMUNOLOGY

(P43) Role of transcription factors in peripheral blood monocyte responses to sepsis
Andrejčinová I., Hortová Kohoutková M., Tidu F., De Zuani M., Tomášková V., Helán M., Šrámek V., Frič J.

(P44) The effects of cytokines on development of suppressive B lymphocytes
Boháčová P., Heřmánková B., Hájková M., Holáň V.

(P45) Accelerated aging of immune cells in childhood and adolescent cancer survivors
Burilova P., Bendickova K., Kohoutkova M.H., Jose S.S., Frankova B., Kepak T., Krenova Z., Fric J.

(P46) Regulation of CD163 expression in human blood monocytes by IL-10
Čurnová L., Fialová M., Kotschwarová K., Švachová V., Stříž I.

(P47) Importance of adenylate cyclase isoforms in regulation of T lymphocytes differentiation
Daďová P., Kubala L., Fedr R.

(P48) Functional flow cytometry-based approaches for validation of novel mutations causing inborn errors of immunity with autoinflammatory phenotype
Fejtková M., Bakardjieva M., Racková M., Svatoň M., Froňková E., Hložková K., Borna Š., Králová J., Klocperk A., Škvárová Kramarzová K., Kalina T., Šedivá A., Hrušák O., Brdička T., Kanderová V.

(P49) Characterization of neutrophils in synovial fluid from patients with knee osteoarthritis
Gabcova G., Gallo J., Manukyan G., Mikulkova Z., Savara J., Dihel M., Kriegova E.

(P50) Anti-tumorigenic activity of probiotic mixture: crosstalk between tumour environment, microbiota and immune system
Hradicka P., Demeckova V., Zakutanska P., Kassayova M.

(P51) Effect of electric field on human polymorphonuclear leukocytes
Chorvátová M., Kocurková A., Šafaříková E., Ehlich, J., Víteček J., Kubala L.

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(P52) Effect of mesenchymal stem cells in combination with cyclosporin A on an inflammatory response in mouse model
Jaburek F., Hajkova M., Vasek D., Porubska B., Bohacova P., Krulova M.

(P53) Effect of low, middle and high molecular weight hyaluronan on immune response *in vivo*
Kocurková A., Ambrožová G., Nešporová K., Šimek M., Hermannová M., Velebný V., Kubala L.

(P54) Immunophenotyping extracellular vesicles using the amnis CellStream flow cytometer
Pugsley H.R., Davidson B.R., Morrissey P.

(P55) Could be CD39+ regulatory T lymphocytes distinguishing marker of SIRS and SEPSIS diasnostics?
Mrázová V., Zuzulová M., Jarčušková J., Záhorec R.

(P56) Sertoli cells as a potential therapeutic tool for acute myocardial infarction
Porubská B., Hájková M., Krulová M.

(P57) Effects of pseurotin alkaloids on selected immune cell functions
Rubanova D., Daďová P., Skoroplyas S., Fedr R., Vasicek O., Kubala L.

(P58) Natural pseurotins affect human B-lymphoma cells *in vitro*
Skoroplyas S., Mosejova E., Bosnjakovic R., Kubala L., Vašíček O.

(P59) LDNs in CVID patients
Slanina P., Štíchová J., Litzman J., Hel Z., Vlková M.

(P60) Characterization of unique urothelial carcinoma cell lines from BBN-induced murine bladder carcinoma
Stepanek I., Kerzeli I., Lord M., Mangsbo S.

(P61) NK cells in reproductive immunology
Szaboova K., Haramiova K., Tibenska E.

(P62) Quantifying immune cell subsets in living cultures over time using IncuCyte® live-cell analysis system
Szybut C.

(P63) Immophenotyping and cytokines profile after total body irradiation
Šinkorová Z., Lierová A., Pejchal J., Jeličová M., Andrejsová L., Kašparová J., Korecka L., Bílkova Z., Němcová M.

(P64) Low molecular weight leukocyte extract (transfer factor) activates porcine T-lymphocytes
Štěpánová H., Hlavová K., Gebauer J., Hodkovicova N., Krejci J.

(P65) Optimization of a methodology for the analysis of immune cells in glioblastoma microenvironment by flow cytometry
Ternerova N., Houdova Megova M., Stollinova Sromova L., Busek P., Sedo A.

(P66) The effect of cold adaptation on the immune systeme
Vašek D., Žurmanová J., Jabůrek F., Hájková M., Krulová M.

(P67) Evaluation of probiotic candidates for the re-programming of macrophage subset-driven pro-inflammatory responses: rebuilding the gut ecosystem via *faecal microbial transplantation* in inflammatory bowel disease (IBD)
Zakutanska P., Hradicka P., Demeckova V.

NEW METHODS

(P68) Probiotic effect on mucosal imunity to campylobacter jejuni in chickens
Revajová V., Karaffová V., Herich R., Ševčíková Z., Lenhardt L., Gancarčíková S., Žitňan R., Levkut M. Jn., Šefcová M., Levkut M.

(P69) Quantitative, live-cell kinetic analysis of microglial function and morphology
Overland A.C., Rauch J.N., Oupicka L., Bowe M.L., Alcantara S.L., Lovell G., Dále T., Appledorn D.M.

(P70) High parameter flow cytometry – setup and optimalization
Hnilicová Š., Dvořák P., Musil J.

(P71) 3D bioprinting of stem cells for creating tissue models
Jaroš J., Chochola V., Spustová K., Kandra M., Pospisil J., Proks V., Hampl A.

(P72) Isolation of sterlet (*acipencer ruthenus*) type a spermatogonia using fluorescence-activated cell sorting
Kislik G., Xie X., Pšenička M.

(P73) Maldi-tof biotyping in quality control of clinically relevant cell types
Porokh V., Moráň L., Hampl A., Vaňhara P.

(P74) Automated scoring of the in vitro micronucleus assay for genetic toxicology testing using imaging flow cytometry
Rodrigues M.A.

(P75) Test of metalloproteinases production by mesenchymal stromal cells after combination of different biophysical stimuli
Průcha J., Skopalík J., Švík K., Slavík J.

(P76) Screening for production of intracellular benzo[a]pyrene metabolites by spectral flow cytometry
Tylichová Z., Fedr R., Souček K., Vondráček J.

(P77) Cell separation of CD3+ and CD19+ cells from samples of leukemic patients
Rejlová K., Semerák P., Thürner D., Luknárová P., Mecerodová M., Kalina T., Vášková M.

(P78) CTHRC1: A novel prognostic marker in chronic lymphocytic leukaemia
Zezula N., Janovská P., Popová L., Bryja V.

(P79) High quality multicolor flow cytometry - seeing the whole picture through full spectrum cytometry on the 5 laser aurora
Kharraz Y., Gu H., Zhong A., Jaimes M.

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HANDS-ON WORKSHOPS DESCRIPTION

BECKMAN COULTER

LOBBY HALL

LUNCH WORSHOP | Sunday, 22.9., 12:40

CytoFLEX – High sensitivity and resolution flow Cytometer – The history, present and the future of the technology
CytoFLEX family of Flow Cytometers are known for their extraordinary sensitivity and resolution connected with ease of use and reliability. Some interesting applications to demonstrate the performance will be shown with the future of this cutting-edge technology.

LUNCH WORSHOP | Monday, 23.9., 12:00

Dura Innovation – Duraclone, ClearLLab 10 color, Custom design service of dry cocktails of antibodies and it´s performance.
Duraclone panels are well known and established on the market for their ease of use, effectiveness and performance. Recently this family has been extended by the ClearLLab 10color panels (CE-IVD) which have moved this technology towards the real Clinical usage. Don´t you find an appropriate design of panels for your purpose? Custom Design Service might be the option. Panel design, sample preparation and data analysis using Clinical Kaluza C software will be shown.

HANDS-ON WORKSHOPS

Sunday, 22.9. 14:35 | Monday, 23.9., 11:00 | Tuesday, 24.9., 9:00

CytoFLEX LX – 6 *lasers/21 colors instrument – best in class sensitivity, flexibility and performance for simple analysis even for complex multicolor experiments – introduction, technology, data analysis*

Monday, 23.9., 9:00, 14:30 | Tuesday, 24.9., 10:10

Kaluza C – *Opened and flexible software platform now certified as CE-IVD – demonstration of analyzing multicolor flow cytometry data (e.g. ClearLLab 10c panels and much more)*

Monday, 23.9., 10:20, 15:30

Dura Innovation – *come in contact and discuss well-known Duraclone panels (RUO) but also the new ClearLLab 10 color panels (CE-IVD) or Custom Design Service of DRY Multicolor Cocktails for flow cytometry*

THERMO FISHER SCIENTIFIC

RED HALL

ThermoFisher SCIENTIFIC

LUNCH WORSHOP | Sunday, 22.9., 12:40

Discover Invitrogen™ EVOS™ M5000 the newest all-in-one Cell Imaging System

Fabrizio Cozzani, Technical Sales Specialist/Thermo Fisher Scientific

The new Invitrogen™ EVOS™ M5000 system integrates precision components with a unique modern design that enables high-quality fluorescence and color imaging with unprecedented flexibility. It is a fully integrated system that combines precision optics, an 18.5" high-resolution articulated LCD monitor, and a highly sensitive 3.2 MP monochrome CMOS camera (2,048 x 1,536) with 3.45 µm pixel resolution. Designed by biologists for biologists, the EVOS M5000 microscope is remarkably easy to use. Following seamless image acquisition, you can analyze, edit, and annotate your images using a set of convenient tools available in both live mode and for saved images.

For common applications, we have created easy-to-use image analysis tools driven by sophisticated segmentation algorithms. With a few clicks you can get a total count of your DAPI-stained cells or an estimate of confluence for reproducibility when you split your cells. Once you have edited and analyzed your images, save the images and data to the embedded hard drive, an external USB device, a local network, or to Thermo Fisher Cloud.

LUNCH WORSHOP | Monday, 23.9., 12:00

Next-Generation Flow Cytometry – combining high-speed and precision for improved cell analysis

New developments in cancer research include the detection of rare cells in tissue homogenates and liquid biopsy using the Attune NxT with its unique acoustic focusing technology. In addition, improved assays to characterize immune effector function include cell-based assays to monitor killing of target cells by T cells or antibody-mediated cell killing by Natural Killer cells. We are transitioning these assays into more biologically-relevant models such as whole blood analysis. The

characterization and absolute counting of a range of cell/particle sizes, from very small particles like exosomes or viruses to phenotyping of very large cells, show the transformative performance of the instrument.

HANDS-ON WORKSHOPS

Next-Generation Flow Cytometry – improved assays for cancer research

New developments in cancer research include the detection of rare cells in tissue homogenates and liquid biopsy using the Attune NxT with its unique acoustic focusing technology. In addition, improved assays to characterize immune effector function include cell-based assays to monitor killing of target cells by T cells or antibody-mediated cell killing by Natural Killer cells. We are transitioning these assays into more biologically-relevant models such as whole blood analysis.

Next-Generation Flow Cytometry – Detection of small particles

The characterization and absolute counting of a range of cell/particle sizes, from very small particles like exosomes or viruses to phenotyping of very large cells, show the transformative performance of the Attune NxT flow cytometer

Sunday, 22.9.
14:35 Next-generation flow cytometry – improved assays for cancer research

Monday, 23.9.
9:00 Next-generation flow cytometry – Attune NxT detection of small particles
10:20 Next-generation flow cytometry – improved assays for cancer research
14:30 Hands-on Attune NxT performance - focus on whole blood analysis
15:30 Hands-on Attune NxT performance - focus on small particles

Tuesday, 24.9.
9:00 Hands-on Attune NxT performance - focus on multicolour assays
10:10 Hands-on Attune NxT performance - focus on plate assays

BECTON DICKINSON

BLUE HALL

SUNDAY, 22.3.

Lunch workshop, 12:40 – 14:00

Sorting Brilliant – BD Technology for everyone!
Dr. Uwe Speck, Application Specialist Sorter, BD Life Sciences – Biosciences

During the workshop you will be walked through a development of sorting technology in BD. Since the release of BD FACSAria™ in 2003 the need of cell sorting has become more critical across different laboratory focus. Unsurpassed ease of use, sensitivity, and resolution using lower powered lasers without sacrificing sort performance was transferred into new cell sorter BD FACSMelody™ to enable the technology to everyone in lab. Contrary to meet the specific needs of highly focused labs BD has developed a program of customized solutions for high parameter cell sorting now introducing BD FACSymphony™ S6 system with up to 9 spatially separated lasers. Come to learn more about 6-way sorting capabilities, ultra-quiet VPX electronics system and index sorting.

Hands-on workshop, 14:35 – 15:10

Dri Tubes - see an example of how BD handles the real request for one Dri Multicolor Cocktail.

Mgr. Ondřej Pelák, Application Specialist, BD Life Sciences – Biosciences
Mgr. Marcela Vlková, Ph.D., Ústav klinické imunologie a alergologie, FNUSA

BD offers dried products for flow cytometry. Designed for specific experiment requirements, BD Horizon Dri Multicolor Cocktails are pre-aliquoted formats which can reduce variability between experiments, making these reagents ideal choices for multisite or longitudinal studies. A wide variety of reagents and dyes are available for cocktailing, including BD Horizon BrilliantTM dye reagents. BD Horizon Dri Multicolor Cocktails also have an extended shelf life compared to liquid reagents with stability of ≥ 1 year when stored at room temperature. In addition, researchers can easily incorporate these dried down reagents into automated workflow processes, providing greater consistency, precision, standardization and improved lab efficiency. Attend this workshop to see an example of how BD handles the real request for one Dri Multicolor Cocktail and how difficult it may be.

MONDAY, 23.9.

Hands-on workshop, 9:00 – 9:30

Q&A session with BD Application Specialists.

RNDr. Jiří Šinkora, Ph.D., Mgr. Ondřej Pelák, BD Life Sciences – Biosciences

Come to discuss any ideas, concerns or scientific questions related to flow cytometry and cell sorting. Use the opportunity to meet our experts and share with us your experiences.

10:20 – 10:40

BD FACSymphony™ – high-end complex multicolor solution.

Mgr. Ondřej Pelák, Application Specialist, BD Life Sciences – Biosciences

The BD FACSymphony™ system is a novel cell analyzer that leverages the inherent benefits of flow cytometry and enables the simultaneous measurement of up to 50 different characteristics of a single cell. This high parameter flow cytometer is a powerful analytical tool that enables scientists to identify and analyze distinctive phenotypes in heterogeneous populations. We will show great possibilities with this unique instrument.

11:00 – 11:20

BD FACSLyric™ – clinical flow was never that streamlined, now in 12 color configuration.

Mgr. Ondřej Pelák, Application Specialist, BD Life Sciences – Biosciences

Flow cytometry is a powerful tool for the single-cell analysis of patient samples. As clinical flow experiments increase in size and complexity, there is a need for instrument solutions that deliver both a streamlined, user-friendly workflow and exceptional performance. The BD FACSLyric™ flow cytometry solution combines simplicity, speed and automation to ease workflow and improve productivity. This next-generation flow cytometer enables standardization and collaboration through consistent results and unique assay portability capabilities. It is built on a foundation of excellence, experience and expertise. BD FACSLyric™ is a new diagnostic standard for clinical cell analysis, transforming the way your lab does flow cytometry. We will demonstrate that the BD FACSLyric™ system provides unique tools to the clinical user to help achieve reproducible and consistent results across time and instruments.

Lunch workshop, 12:00 – 13:30

Colorful particles – next step in flow cytometry detection.

Dr. Tina van den Broeck, Scientific Affairs Scientist, BD Life Sciences – Biosciences

Nowadays we may see that the research is accelerated by uncovering deeper scientific insights across different applications. More often spoken topic is the analysis of smaller particles than cells which are a standard sample type in flow

cytometry. BD keeps an eye on the interest and is working on an additional module enabling Extracellular Vesicle detection. First data were obtained on SORPCelesta and will be shown during the mini-workshop together with 'tips & tricks' and some hints to the products to come.

Hands-on workshop, 14:30 – 15:00

BD FACSCelesta™ – working together in perfect harmony.

RNDr. Jiří Šinkora, Ph.D., Application Specialist, BD Life Sciences – Biosciences

BD FACSCelesta™, a compact and cost effective 3-laser and 12 color analyzer with new, low noise VPX electronics will be demonstrated. FACSCelestaTM is driven by BD FACSDiva™, the gold standard among flow cytometry acquisition software allowing for full control of detectors, automatic and manual compensation, firmware setup changes, ex-post fine tuning of compensation and automatic detector settings standardization using the CS&T bead calibrators and quality control module. Sticking to the basic rules of regular and automatic signal intensity standardization results in preserving the elements of compensation matrix; rerunning single stained compensation controls is recommended once in two months on the BD FACSCelesta™ analyzers. BD FACSCelesta™ configurations will be discussed with the emphasis on UV-equipped devices suited for multicolor brilliant UV polymer dye immunophenotyping having the advantage of lower spectral overlaps and lower sample autofluorescence.

Hands-on workshop, 15:30 – 16:00

BD FACSMelody™ – the most user-friendly cell sorter for everyone.

RNDr. Jiří Šinkora, Ph.D., Application Specialist, BD Life Sciences – Biosciences

BD FACSMelody™, a compact, 3-laser and 9 color cell sorter based on the BD FACSAria™ technology driven by a newly developed, easy to use BD FACSChorus™ software will be demonstrated. BD FACSChorus™ is a user-friendly software allowing for a very fast, step by step daily quality control and drop delay setup procedures that can be skipped on user's request. As such, the system needs very short training and it can be used by users with almost null knowledge in the field of flow cytometry theory, no operators are needed, which will be demonstrated, too. All formerly operator-requested and/or driven procedures like regular quality control (QC), side stream setup, drop delay definition and cell deposition are based on image analysis and without a need of intervention from the operator side. The use of embedded standardization based on polychromatic CS&T beads and BD patented gain-independent compensation matrix, the feature invented in the most recent pieces of BD software, allow for skipping frequent compensation procedures. Compensation matrix recalculation upon changes of detector gains will also be shown.

TUESDAY, 24.9.

Hands-on workshop, 9:00 – 9:30

Q&A session with BD Application Specialists.

RNDr. Jiří Šinkora, Ph.D., Mgr. Ondřej Pelák, BD Life Sciences – Biosciences

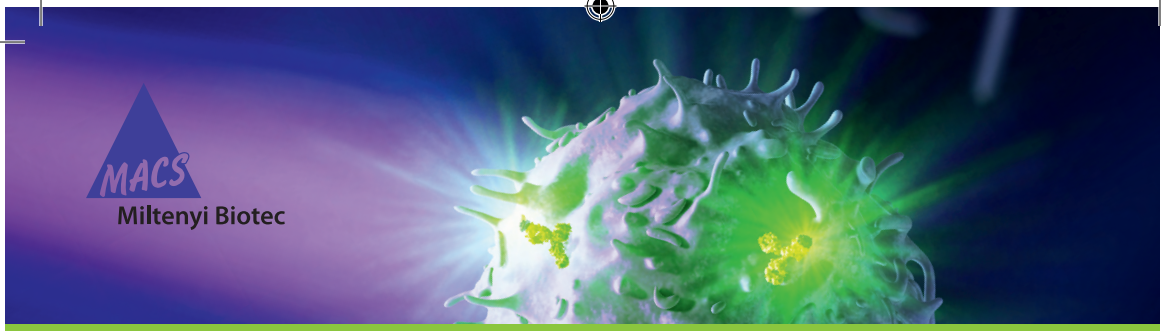
Come to discuss any ideas, concerns or scientific questions related to flow cytometry and cell sorting. Use the opportunity to meet our experts and share with us your experiences.

Hands-on workshop, 10:10 – 10:30

BD FACSCelesta™ knowledge shoot-out quiz to win 2-months on site demo.

Ing. Tereza Hájková, MBA, BD Life Sciences – Biosciences

As our last mini-workshops we organize a knowledge shoot-out quiz to win BD FACSCelesta™ for your laboratory for 2 months on site demo. Throughout the whole conference you will learn about this flow cytometer platform, use the opportunity and apply all the gathered information about the system in the quiz. Based on the result of knowledge quiz we announce 3 winners (3 different laboratories) with highest number of correct answers.



International Conference Analytical Cytometry X

21.-24.9.2019
Hotel Jezerka, Seč-Ústupky, Czech Republic

Practical hands-on workshops Miltenyi Biotec and Biohem September 23–24, 2019

See the MACSQuant® Tyto Cell Sorter in action!

Discover the most gentle way of cell sorting and see benefits coming from increased cell viabilities, contamination-free sorting and increased operator safety.

Learn about the MACSQuant® Analyzer 16 automated features!

Come to see a demonstration of the fully automated features of the MACSQuant® Analyzer 16. Explore automated acquisition modes, automated experiment configuration, multi-instrument alignment technology, as well as evaluation of different research applications.

Skleněný salonek

Monday, September 23

09:00-09:30 MACSQuant® Tyto Cell Sorter
10:20-10:50 MACSQuant® Analyzer 16
11:00-11:30 MACSQuant®Tyto Cell Sorter
14:30-15:00 MACSQuant® Analyzer 16
15:30-16:00 MACSQuant®Tyto Cell Sorter

Tuesday, September 24

09:00-09:30 MACSQuant®Tyto Cell Sorter
10:10-10:40 MACSQuant® Analyzer 16

Make sure to join us for our lunch session: lunch refreshment will be provided!

Lunch workshop

Sunday, September 22

12:40-14:00
Skleněný salonek

MACSQuant® Tyto Cell Sorter

The gentleman among cell sorters

Speaker: Dr. Yvonne Diener

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I.T.A. INTERTACT

YELLOW HALL

Lunch workshop, Sunday 22.9., 12:40

Sony ID7000 – The world's most powerful cytometer with 7 lasers and 188 detectors

Vendula Šinkorová, Sony Biotechnology

The ID7000 uses spectral technology to collect continuous light from 360 nm to 920 nm using up to 188 detectors, allowing researchers to obtain more data than from any traditional cytometer. With this technology, data can be measured more accurately, and both spectrally adjacent fluorochromes and fluorescent proteins can be used in a panel. The system enables researchers to perform experiments using 44 colors, limited only by the fluorochromes available.

Hands-on workshop, Sunday 22.9., 14:35 | Monday 23.9.2019, 14:30

Sony MA900 – High-end cell sorting has never been so easy

Vendula Šinkorová, Sony Biotechnology

This multi-application sorter offers high level of automation from startup through aseptic cleaning, QC to sort setup (automated drop delay and side stream calibration), all operated by a touch of a button. Siple wizards guide you through all procedures. High level of flexibility includes detection of up to 14 parameters from up to 4 lasers and 4-way sorting into various tube or plate formats. To minimize contamination of your precious samples you can quickly and easily exchange sorting chips, which are automatically loaded and aligned to ensure high level of standardization and reproducibility. Focus on biology instead of spending your time setting and adjusting the sorter!

Hands-on workshop, Tuesday 24.9., 9:00

Sony SA3800 – discover the world of spectral cytometry for your everyday research

Jozef Janda, I.T.A.-Intertact

With a lot of automated features, SA3800 is your perfect companion for your entry into spectral cytometry. Patented spectral technology increases the sensitivity for dim signals by collection of photons from full spectrum from 420 to 800 nm. Spectral unmixing allows combinations of spectrally highly overlapping fluorochromes together in a panel. Multiple autofluorescence populations can be identified and autofluorescence can either be eliminated or studied as a dedicated parameter. Easy to use spectral library eliminates the need to repeatedly measure single stained controls.

Hands-on workshop, Monday 23.9., 9:00

Cytognos - Complete solution for hematology based on Euroflow Next Generation Flow

Jozef Janda, I.T.A.-Intertact

A complete solution from sample preparation and data acquisition to expert-guided automated reporting. Omnicyt™ CE-IVD cytometer's unique and innovative features make it the perfect complement to work with MM MRD samples following the EuroFlow™ protocols. Its acoustic focusing and the volumetric non-pressurized acquisition system allows for the acquisition of up to 25 million events per file without losing relevant information by electronic abort. Acoustic focusing allows measurement of samples at high sample flow rates (up to 1000 ul/min) without compromising data quility. Infinicyt™ software includes innovative automated data analysis tools that, in combination with the EuroFlow™ reference database, allows a fast identification and characterization of all cell populations.

Hands-on workshop, Monday 23.9., 10:20

Luminex - Immunophenotyping Extracellular Vesicles using modern flow cytometry

Michal Konieczny, Luminex

Only recently has the importance of extracellular vesicles (EVs) as key mediators of intercellular communication been appreciated. EVs are membrane derived structures that include exosomes, microvesicles and apoptotic bodies. Exosomes have been shown to transfer molecules between cells and have the potential to transfer signals between cells. Quantifying and characterizing EVs in a reproducible and reliable manner has been difficult due to their small size (exosomes range from 30 – 100 nm in diameter). Attempts to analyze EVs using traditional PMT based flow cytometers has been hampered by the limit of detection of such small particles and low refractive index. To overcome these limitations we have employed ImageStreamX imaging flow cytometer and Luminex recently developed CellStreamTM flow cytometer. The CellStreamTM utilizes the Amnis® imaging technology, having the advantage of high throughput flow cytometry with higher sensitivity to small particles due to the time-delay-integration image capturing system. Join us during the lecture and discover the potential of flow cytometers that provides unparalleled flexibility and performance.

Lunch workshop, Monday 23.9., 12:00

Luminex - High speed, high content & ultra-high sensitivity Imaging Flow Cytometry analysis and next generation image processing

Michal Konieczny, Luminex

By combining the speed, sensitivity, and phenotyping abilities of flow cytometry with the detailed imagery and functional insight of microscopy, the Amnis® ImageStream®X Mk II and Amnis® FlowSight® Instruments overcome the

limitations of both techniques and open the door to an extensive range of novel applications. Ability of collecting spectrally separated images for a large number of cells together with next generation image processing strategies incorporating machine learning and deep learning algorithms leads to unrevealed insights in cellular forms and functions. Join us during the workshops and discover the potential of Imaging Flow Cytometers

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IBA LIFESCIENCES

GREEN HALL

Hands-on workshop
Sunday 22.9., 14:35
Monday 23.9., 10:20, 11:00, 14:30
Tuesday 24.9., 10:10

Fab-TACS® - cell separation reinvented

Dr. Claudia Wrzos, Product Manager Cell Selection & Expansion, IBA Lifesciences

Finding a suitable method for cell separation can be challenging. The method should preserve the biology of targeted cells rather than only the population of certain cell types. In our workshop you will learn all about our automated and manual cell separation solutions for your immunological or cell biological applications. The technology is based on an affinity chromatography system for non-magnetic isolation of immune cells. It works with Twin-Strep-tagged Fab fragments, which reversibly capture and release the target cells. The Fab-TACS® technology delivers label-free, non-activated cells, making them perfectly suitable for demanding immunological or cell biological uses.
We hope to see you in the workshop!

ACCELA

COLOUR ROOM

Hands-on workshop, Sunday 21.9., 14:35

Spectral Cytometry with the Cytek Aurora – New Approaches in the use of highly overlapping dyes for flow cytometry

Recent advances in instrumentation and the development of polymer dyes have resulted in a dramatic increase in the ability to design and perform multicolour assays in flow cytometry. Spectral flow cytometers, such as the Cytek Aurora, provide the ability to utilise highly overlapping dyes with no detrimental effect to assay sensitivity thereby increasing the options of dyes that can be used in combination. This workshop will present data from 3 colour and 16 colour leucocyte panels that effectively identify T cell subsets stained with highly overlapping dyes including: BV421, Super Bright 436 and BV510. The spectrum signatures of these highly overlapping dyes will be analysed and compared, and a multicolor analysis with spectral unmixing will be demonstrated

Workplan

This workshop will utilise the 3-colour an 16 colour demo panel of pre-stained Lyophilised PBMCs have been previously run and then analysed on the day through offline analysis of pre-recorded data through a projector. Slides of the dye spectra also be displayed to show how conventional cytometry is limited in its ability to discriminate the BV421 and SB436. This walkthrough could be rapidly achieved in a 25-minute window particularly from a purely data analysis approach with pre-designated templates. This could even be expanded onto the 16-colour panel if determined as a more appropriate approach to display the capabilities of the Aurora.

Hands-on workshop, Monday 22.9., 9:00

Spectral Cytometry with the Cytek Aurora – Hide & Seek: Using Autofluorescence Extraction (AFE) to Better Resolve Your Population of Interest

Question – Is your dim population proving difficult to see? Spectral flow cytometry empowers users experiencing high autofluorescence to treat the autofluorescence as its own fluorescence tag during unmixing allowing them to now easily resolve dim or poorly separated populations. Do you see a way that autofluorescence extraction (AFE) will be able to help your flow cytometry experiment? Experimental Plan – To best understand how AFE can improve the resolution of hard to see populations, we utilize large highly auto fluorescent human myeloid GFP+ and GFP- K562 cells. Gating only on live cells using a viability dye, we demonstrate unmixing with and without AFE to look at the resolution of GFP+ cells from GFP- cells by extracting out the background autofluorescence of the GFP- population used in our unstained

control.

Workplan

The plan for this would be to utilise the workshop data that our client has set up recently this year for her flow course. The approach consist of a guided analysis to show how the data looks with and without autofluorescence extract to demonstrate how AFE can result in improved resolution of populations and is data analysis implications.

Hands-on workshop, Monday 22.9., 10:20

Spectral Cytometry with the Cytek Aurora – Taste the Rainbow: Comparing two fluorochromes, how do we tell if signatures are unique?

Question – What is a spectral signature in spectral flow cytometry how does one determine if a fluorochrome spectral signature is "unique enough" to use in combination with others? What can be done when two signatures are visually very similar to each other?

Experimental Plan – This workshop will demonstrate data from two samples of Antibody Capture (AbC) beads stained with different reagents that have been run on the Aurora. The median fluorescence from each channel will be used to compare signatures to determine possible overlap utilising our spectral overlap tool for Excel. Based on overlap in the collected spectra we will demonstrate the practicality of using these dyes in combination together in the same sample. Are they unique enough? If the user decides to use these in combination together, what considerations need to be made during panel design?

Hands-on workshop, Monday 22.9., 14:30

See what you've been missing - workshop on unique data analysis generated on Imaging Flow Cytometer

Imaging Flow Cytometry (IFC) combines the speed, sensitivity, and phenotyping abilities of flow cytometry with the detailed imagery and functional insights of microscopy. This unique combination enables a broad range of applications that would be impossible using either technique alone. By collecting large numbers of digital images per sample and providing a numerical representation of image-based features, the Luminex ImageStreamX Mk II combines the per cell information content provided by standard microscopy with the statistical significance afforded by large sample sizes common to standard flow cytometry. With the ImageStreamX Mk II System, fluorescence intensity measurements are acquired as with a conventional flow cytometer; however, the best applications for the ImageStreamX Mk II take advantage of the system's imaging abilities to locate and quantitate the distribution of signals on in or between cells.

Hands-on workshop, Tuesday 23.9., 9:00

The new CellStream – Benchtop flow cytomter with unparelleled sensitivity and flexibility for cell and small particles analysis

The new Luminex CellStream Benchtop Flow Cytometer delivers unparalleled sensitivity and flexibility for cell and small particles analysis. This compact system contains patented optics technology unique to our state-of-the-art Amnis flow cytometers and has a fully configurable 7-laser capacity. With highly sensitive and configurable optics, researchers benefit from multiparameter detection capabilities, while maintaining the flexibility to tailor and expand the system according to their research needs and budget. The CellStream is a highly-customizable and compact flow cytometer that is the first to use a camera for detection. Only recently has the importance of extracellular vesicles as key mediators of intercellular communication been appreciated. Attend this workshop to learn more about how the unique Amnis time delay integration and camera technology inside the CellStream System enables immunophenotyping of extracellular vesicles.

LIST OF PARTICIPANTS

A

Gabriela **AMBROŽOVÁ**, FNUSA-ICRC, Brno, CZ
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B

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