FlowTex

Welcome to the FlowTex 2022 Hybrid Cytometry Conference

Tuesday March 22, 2022

8:30 – 10:30	**Best Practices & Data Session**
10:30 – 12:00	**Backbone Panel Design Roundtable**
1:00 – 1:45	**Emerging Scientist Session**
2:00 – 4:15	**Sorting to OMICs Roundtable**
4:15 – 5:00	Ice Cream Social

Wednesday March 23, 2022

9:00 – 10:45	**Clinical Cytometry Session**
11:00 – 12:00	**Full Spectrum Cytometry Session**
1:00 – 1:40	**Full Spectrum Cytometry Session**
2:15 – 4:45	**Cell Sorting Roundtable**
4:45 – 5:00	Closing Remarks & Raffle

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Welcome to the 15th Annual

FlowTex Cytometry Conference

Tuesday March 22, 2022

Best Practices & Data Session

8:00-8:30 Registration & Breakfast

8:30-8:45 Opening Remarks by FlowTex President David Haviland

8:45-9:45 **Kathy Daniels** *Rigor and Reproducibility in Research Flow Cytometry: From Experimental Design to Data Analysis*

9:45-10:00 **Sarah Schneider** *Probiotics and Immunotherapy in Melanoma: A Computational Analysis Workflow*

10:00-10:15 Coffee Break

10:15-10:30 **Sofia Mastoraki** *LMW-E Induction and Crosstalk with Immune Cells Potentiates Local Immune Responses Leading to an Immunosuppressive Microenvironment at the Early stages of Breast Tumorigenesis in Mouse Models*

Backbone Panel Design Roundtable

10:30-11:00 **Anne-Laure Iscache** *Cartography of the human and murine immune system on a 30 parameter cytometer: Implementation of optimized, 'ready-to-use' and shared antibody panels*

11:00-11:30 **Stephanie Widmann** *A strategic design approach for the development of an optimal backbone panel*

11:30-12:00 **Roundtable Discussion** **Celine Vandamme, Mark Edinger, Aaron Tyznik & Session Speakers**

12:00-1:00 **Lunch**

Emerging Scientist Session

1:00-1:15 **Natthakan Thongon** *Flow cytometry-based assays dissected new mechanisms of hematopoietic stem cells' exhaustion induced by telomere shortening*

1:15-1:30 **Cheng-Yen Chang** *Chronic Exposure to Carbon Black Ultrafine Particles Reprograms Macrophage Metabolism and Accelerates Lung Cancer*

1:30-1:45 **Katharina Wohlan** *Clone wars: A multiplex mouse model of clonal hematopoiesis*

1:45-2:00 Coffee Break

Sorting to OMICs Roundtable

2:00-2:30 **Tricia Rogers** *From flow cytometry to genomics: A case for expanding capabilities in your core*

2:30-3:00 **Annie Song** *Isolating single-cell omics defined populations via spectral flow cytometry*

3:00-3:30 **MT Sabrina Bertilaccio** *Tumor-targeted immunomodulators in chronic lymphocytic leukemia*

3:30-4:00 **Simona Colla** *Combining flow cytometry and multiomic technologies to dissect the molecular bases of hematopoietic disorders*

4:00-4:15 **Roundtable Discussion** **Session Speakers**

4:15-5:00 Ice Cream Social

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Welcome to the 15th Annual

FlowTex Cytometry Conference

Wednesday March 23, 2022

8:00-9:00 Registration & Breakfast

Clinical Cytometry Session

9:00-10:45 **Sara De Biasi** *Single Cell Approaches for T Cell Monitoring in Cancer Immunopathogenesis of COVID-19: Lessons from Special Patients*

10:45-11:00 Coffee Break

Full Spectrum Cytometry Session

11:00-11:45 **Diana Bonilla Escobar** *Dealing with Autofluorescence by using Full Spectrum Profiling (FSPTM)*

11:45-12:00 **Jared Henderson** *Don't sweat FRET: A practical guide to FRET by spectral flow cytometry*

12:00-1:00 **Lunch**

Full Spectrum Cytometry Session

1:00-1:40 **Nicolas Loof** *Compensation and more: AutoSpill an algorithm to ease compensation and remove autofluorescence*

1:40-2:15 Coffee Break & Vendor Exhibits

Cell Sorting Roundtable

2:15-2:45 **Karen Clise-Dwyer** *Opening the Black Box: A Researcher's Perspective on Cell Sorting*

2:45-3:00 **Veena Papanna** *Rare cell isolation strategies*

3:00-3:45 **Peter Lopez** *The effect of droplet cell sorting of the sorted cell*

3:45-4:30 **Rui Gardner** *Cell sorting: A guide to the perplexed*

4:30-4:45 **Roundtable Discussion Session Speakers**

4:45-5:00 Closing Remarks & Raffle Prizes

Speaker Biographies

Maria Teresa Sabrina Bertilaccio, PhD, *Tumor-targeted immunomodulators in chronic lymphocytic leukemia*

Dr. Bertilaccio is an Assistant Professor in the Department of Experimental Therapeutics and co-Leader of the CLL Moon Shot Program at MD Anderson Cancer Center. She obtained a Ph.D Degree in Molecular Medicine/Immunology from San Raffaele University in Milan, where she investigated combination strategies based on chemotherapy and dendritic cell-based immunotherapy in prostate cancer. During the past years she focused her scientific interests on translational research and particularly on the dynamics of innate and adaptive immune cells with the ultimate goal to design novel therapeutic strategies for B lymphoid malignancies. Dr. Bertilaccio will discuss innovative immune-based therapeutics aimed at targeting immunosuppression in patients with chronic lymphocytic leukemia.

Diana Bonilla Escobar, PhD, SCYM (ASCP) ^{CM}, *Dealing with Autofluorescence by using Full Spectrum Profiling (FSP^{TM})*

Dr. Diana Bonilla Escobar is an Immunologist, with a Ph.D. from Texas A&M University, a postdoctoral degree from Baylor College of Medicine and an ASCP-accreditation as a cytometry specialist. She has more than 20 years of experience as a biomedical scientist for a variety of applications, including infectious diseases and cancer at MD Anderson Cancer Center. She was one of the ISAC SRL emerging leaders and is highly involved in ISAC educational activities and task forces. She currently works as the US Applications Lead for Cytek Biosciences.

Karen Clise-Dwyer, PhD, *Opening the Black Box: A Researcher's Perspective on Cell Sorting*

Karen Clise-Dwyer earned her PhD at the University of Wisconsin-Madison, where she studied B lymphocyte deficiency, and then did a postdoctoral fellowship at the Trudeau Institute in Saranac Lake, NY where she studied CD4 T cell function in aging. She has directed UT MD Anderson's Advanced Cytometry and Sorting Facility since 2008. She is an Associate Professor in the Departments of Hematopoietic Biology & Malignancy and Stem Cell Transplantation and has been a professional cytometrist for over 20 years. Her research at MD Anderson focuses on single cell analyses in leukemia. She is a past-president of FlowTex and has been a member of the FlowTex organizing committee since it was formed in 2007.

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Andrea Cossarizza, MD, PhD, *Immunopathogenesis of COVID-19: Lessons from Special Patients*

Dr. Cossarizza holds a Master's degree in Medicine and Surgery from the University of Padua and a PhD in Oncology from the Universities of Bologna and Modena, with a specialization in Clinical Pathology and Immunohematology from the University of Modena and Reggio Emilia. As a medical student, his interest in immunology led him to the Basel Institute of Immunology and the New York University Medical Center. After working at several different institutions (Charing Cross Sunley Res. Ctr., London; Univ. Cochin, Paris; University of California at Los Angeles – UCLA), he became the Associate Professor of General Pathology and Immunology at the University of Modena and Reggio Emilia in 1998 and was appointed Full Professor in 2010. He is also Director of the School of Specialization in Clinical Pathology and Clinical Biochemistry and Vice Dean of the School of Medicine. Since 1997, Dr. Cossarizza has participated in several activities and committees in ISAC, and in 2016 he was elected President.

Simona Colla, PhD, *Combining flow cytometry and multiomic technologies to dissect the molecular bases of hematopoietic disorders*

Dr. Colla is an Associate Professor in both the Department of Leukemia and the Department of Experimental Therapeutics at the University of Texas MD Anderson Cancer Center. She obtained a PhD in Experimental Hematology from the University of Modena and Reggio in Modena, Italy, before doing research fellowships at the University of Parma, the Myeloma Institute for Research and Therapy at The University of Arkansas, and the Dana Farber Cancer Institute. Dr. Colla then joined the MD Anderson as faculty in 2011 in the Department of Genomic Medicine. Her laboratory is interested in understanding the biological mechanisms underlying the pathogenesis of Myelodysplastic Syndrome with the overall goal of developing strategies for improved prevention and treatment of MDS.

Kathy Daniels, SCYM (ASCP) ^{CM}, *Rigor and Reproducibility in Research Flow Cytometry: From Experimental Design to Data Analysis*

Kathy currently serves as the Associate Director of the Flow Cytometry Core Facility at Sana Biotechnology in Cambridge, MA. She has been working in flow cytometry for the past 9 years and is actively involved with the local and international cytometry community. Her goal is to empower researchers through a better understanding of the technology while providing increased open access educational resources to cytometrists worldwide. Kathy is currently the Vice President of MetroFlow and an ISAC SRL Emerging Leader.

Sara De Biasi, PhD, *Single cell approaches for T cell monitoring in cancer*

Sara De Biasi is an assistant professor of General Pathology and Immunology at the University of Modena and Reggio Emilia School of Medicine (Italy). Dr. De Biasi obtained the PhD in Clinical and Experimental Medicine (area of interest: Immunology) from the same university in 2013. From then, she has been working as a post-doc in the lab of Immunology directed by Prof. Andrea Cossarizza. Most of her work was focused on phenotype, function, and metabolic aspects of adaptive immune response during HIV infection, autoimmune diseases, cancer, and these last two years, Sars-CoV-2 infection.

Mark Edinger, *Backbone Panel Design Roundtable*

Mark joined Cytek Biosciences in January 2021 and serves as the company's VP of Scientific Affairs. As the VP of Scientific Affairs, Mark fills the role of Scientific Advisor and Strategist of Cytek Biosciences. Prior to Cytek, Mark served as the Director of Scientific Affairs at Q2 Solutions, where he placed quantitative standardization of flow cytometers, along with other state of the art practices including the deployment of Cytek Aurora instruments in eight Q2 laboratories around the world. Prior to Q2 Solutions, he served as a Senior Scientist at Becton Dickinson, where he founded the Technical Applications Group and the R&D Systems Verification Laboratory.

Mark began his flow cytometry career at the Cleveland Clinic where he pioneered flow cytometry there in the late 1970's. During his 21 years there he developed many of the techniques and assays employed today for clinical practice and academic research. Mark received a BS in Biology from Case Western Reserve University. He holds a MT-ASCP-I certification.

Rui Gardner, PhD, *Cell sorting: A guide to the perplexed*

Rui's scientific career began just before graduating in Biochemistry in 1997, as a trainee in mathematical biology. In 2004 he earned his PhD in Biomedical Sciences, for which most of the work was carried out in the department of Microbiology and Immunology at the University of Michigan, but also at the University of Southern California and the Gulbenkian Institute of Science in Portugal followed by postdoctoral work on evaluating immune diversity estimation techniques, still at the Gulbenkian Institute, where in the end of 2006 Rui became Core Manager of the Flow Cytometry facility. In June 2016 Rui was hired to head the Flow Cytometry Core Facility at Memorial Sloan-Kettering Cancer Center in New York.

Driven by a sense of responsibility towards his peers and the flow cytometry community Rui has been actively involved in the Core Managers Task Force of the International Society for the Advancement of Cytometry (ISAC) since 2007 and elected for ISAC's Council from 2012-2016. He has since been involved in the establishment of several Shared Resource Lab (SRL) programs and activities and chaired the ISAC SRL Oversight Committee for the development and improvement of these programs from 2014-2016. Currently, he is a member of several ISAC committees, including the Live Education Delivery Task Force, Meetings Committee, and the Leadership Development Committee. Rui is also a member FlowCytometryUK, member and past councilor of the Sociedad Iberica de Citometria (SIC), and member of the FlowTex board.

Jared Henderson, PhD, *Don't sweat FRET: A practical guide to FRET by spectral flow cytometry*

Jared Henderson is currently the Translational Research Coordinator for the Department of Lymphoma and Myeloma at MD Anderson Cancer Center. He received his Ph.D. in Immunology from the MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences.

Under the direction of Dr. R. Eric Davis, he studied B cell receptor signaling pathway and its role in Lymphoma, and developed multiple cellular bioassays to evaluate real-time receptor signaling in living cells.

Anne-Laure Iscache, *Cartography of the humane and murine immune system on a 30 parameter cytometer: Implementation of optimized, 'ready to use' and shared antibody panels*

Anne-Laure is a CNRS research engineer that works on a flow cytometry core facility at the Toulouse Institute of Infectious and Inflammatory Diseases, Infinity (Inserm UMR1291 - CNRS UMR5051 - University Toulouse III). After obtaining a professional master's degree in Bioengineering-Biotechnologies applied to health, she worked for 7 years in a cytometry facility and in a research team at the same time. Immunology has always been the main theme of her work. She was recruited in 2015 as an engineer at the CNRS. For the last 8 years she has been working on the Infinity flow cytometry core facility.

Anne-Laure has over ten years of expertise in cytometry. She works daily with researchers, PhD students, engineers and technicians who are particularly interested in immunology, inflammation and infectiology. Her core activity is to advise and coach users in the analysis and sorting of immune system cells. Anne-Laure is also an expert in conventional and multidimensional data analysis. She is an active member of the French Association of Flow Cytometry (AFC). She is also involved in data analysis training and courses for Institutional like CNRS, INSERM and University.

Nicolas Loof, *Compensation and more: AutoSpill an algorithm to ease compensation and remove autofluorescence*

Nicolas Loof has 10+ years of experience in the field of Flow Cytometry. He is currently a Senior Application Scientist, Multi-Omics Specialist at BD Biosciences. Between 2010-2012 Nicolas served as a Flow Cytometry SRL manager at Baylor Institute for Immunology Research and in 2012 he joined UT Southwestern in Dallas, Texas as the Director of the Moody Foundation Flow Cytometry facility servicing over 120 laboratories. In 2021 Nicolas moved to industry and joined BD-FlowJo. He is also a recognized Member of ISAC since 2010, a former member of the ABRF Flow Cytometry Research Group and a FlowTex committee member since 2011.

Peter Lopez, *The effect of droplet cell sorting of the sorted cell*

Peter Lopez is an Associate Professor of Pathology at NYU Grossman School of Medicine. He started his career in flow cytometry in 1977, working at University of Rochester with Leon Wheeless, evaluating slit-scan flow cytometry as a tool for prescreening gynecologic cell samples. He later directed core laboratories at Fox Chase Cancer Center, Dana-Farber Cancer Institute, Aaron Diamond AIDS Research Center, and currently serves as the Director of the Cytometry and Cell Sorting Laboratory at NYU. He was influential in the testing and design of the MoFlo, MoFlo XDP, ZE5 and Bigfoot cytometers. His current work focuses on what he calls "Sorter Induced Cellular Stress", the effect of the cell sorting process on the sorted cell.

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Veronica Obregon-Perko, PhD, *Facilitating flow cytometry panel design with BD® Research Cloud*

Veronica Obregon-Perko is currently a FlowJo Application Scientist at BD Biosciences and comes from a multidisciplinary background in host-pathogen interactions. She earned her PhD in Microbiology and Immunology from the UT Health Science Center at San Antonio in 2018, where she studied innate mechanisms of HIV resistance in a baboon model. From 2018-2021, Veronica was a postdoctoral fellow at the Emory University School of Medicine where she researched viral and immune correlates of HIV control in a macaque model of pediatric HIV infection. During these training years she developed a passion for flow cytometry and teaching, and so, in 2021, entered her role at BD where she now provides education and support to FlowJo users.

Veena Papanna, MS, SCYM (ASCP) CM, *Rare cell isolation strategies*

Veena Papanna is a Flow Cytometry Coordinator at the University of Texas MD Anderson Cancer Center Advanced Cytometry & Sorting Facility. She received her Master's degree in Microbiology from the University of Bangalore, India in 2002. Veena has more than 10 years of biomedical and immunology research experience including over 5 years of experience working in flow cytometry core facilities. She received cytometry certification from ISAC in March 2015 and she has attended many hours of cytometry training provided by BD, ISAC, FloCyte, Leica, and Amnis. She has expertise in handling sorting and analysis flow cytometry assays and Amnis ImageStream experiments. Veena has been associated with the Advanced Cytometry & Sorting Facility since 2011.

Patricia Rodgers, *From Flow Cytometry to Genomics: A case for expanding capabilities in your core*

Patricia Rogers is the Associate Director of the Flow Cytometry Facility at the Broad Institute of MIT and Harvard and has worked in the field of flow cytometry for over 16 years. Patricia founded and has been leading the Broad Flow Facility for the past six years, which supports around 400 researchers from over 30 groups and programs. The facility has grown rapidly and now includes over 20 flow cytometers, genomics, and imaging instrumentation.

Sarah Schneider, SCYM (ASCP) CM, *Probiotics and Immunotherapy in Melanoma: A Computational Analysis Workflow*

Sarah Schneider earned her bachelor's degree in Biochemistry & Molecular Biology from Clark University in Worcester, MA. Sarah then worked as a Research Assistant at the Texas Heart Institute prior to joining MD Anderson's Advanced Cytometry & Sorting Facility (ACSF) in 2015, where she specialized in high dimensional cytometry data analysis. Sarah is currently a first year PhD student at the MD Anderson UTHealth Graduate School of Biomedical Sciences. She has served as Secretary for FlowTex since 2017.

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Annie Song, *Isolating single-cell omics defined populations via spectral flow cytometry*

Annie Song is a fourth year PhD candidate mentored by Drs. H Leighton Grimes and Nathan Salomonis. She aims to make a significant contribution to the field of single-cell genomics and hematopoiesis/hematologic malignancies. Annie utilizes highly multiplexed single-cell techniques (CITE-seq, TEA-seq) to aid in biological discovery of multi-lineage priming in hematopoiesis. She has developed complex flow cytometry panels (16 colors in conventional and 30 colors in spectral) to translate information gained from sequencing to FACS, which enables isolation of targeted cell populations and validation.

Aaron Tzynik, PhD, *Backbone Panel Design Roundtable*

Aaron Tyznik is the Director of Scientific Affairs at BD Biosciences. Dr. Tyznik earned his PhD at the University of Washington School of Medicine, where he studied how CD4 T cells help in CD8 T cell responses. He then did his post-doctoral fellowship at the La Jolla Institute for Allergy and Immunology, in Dr. Mitchell Kronenberg's lab, where he studied invariant natural killer T cell responses in the presence and absence of foreign antigens. Dr. Tyznik joined BD Biosciences in 2013, where his work has involved high parameter flow cytometry, single-cell multi-omic protein and mRNA interrogation, and utilizing advanced analysis algorithms.

Celine Vadamme, PhD, *Backbone Panel Design Roundtable*

Dr. Celine Vadamme is a scientist at the Janssen Pharmaceutical Companies of Johnson & Johnson in High Dimensional Immunology. She received her PhD from Universite de Nantes and did postdoctoral work under the supervision of Dr. Tuure Kinnuen at the University of Eastern Finland (Kuopio, Finland). Building on her expertise in human immunology and flow cytometry, the projects she is primarily responsible for focus on assessing dysregulated antigen-specific CD4+ T cell responses in allergy and type 1 diabetes, in order to identify biomarkers for disease progression and/or response to treatment. In that perspective, she combines high-dimensional flow cytometry analyses, cell sorting and transcriptomics to characterized CD4+ T cell subsets in clinical cohorts.

Stephanie Widmann, *A strategic design approach for the development of an optimal backbone panel*

Stephanie Widmann graduated from University of California San Diego. She has more than 20 years of experience in flow cytometry reagent development, assay development and single cell multiomics cite-seq applications. Her early work includes polymer development for use in flow cytometry, which helped drive the expansion of high parameter flow cytometry. Currently she is leading a team of scientists with diverse expertise, generating materials that help serve as important educational resources for researchers to improve their understanding of flow cytometry.

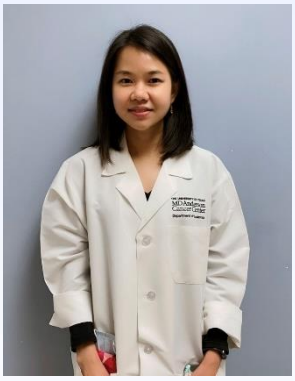
Emerging Scientist Speaker Biographies

Cheng-Yen Chan, *Chronic exposure to carbon black ultrafine particles reprograms macrophage metabolism and accelerates lung cancer*

Cheng-Yen Chang is a recent graduate who received her Ph.D. degree at Baylor College of Medicine in January 2022. She worked on a multidisciplinary project, including environmental safety, cancer, and lung immunity. The project was supported by NIOSH and CPRIT. Today, she is going to share her findings of how an environmental pollutant, nano-sized carbon black, changes the lung microenvironment using mass cytometry.

Sofia Mastoraki, PhD, *LMW-E and crosstalk with immune cells potentiates local immune responses leading to an immunosuppressive microenvironment at the early stages of breast tumorigenesis in mouse models*

In 2018, Sofia Masktoraki received her Ph.D. from the University of Athens, Greece. Her Ph.D. thesis work focused on the discovery and clinical evaluation of blood-based DNA methylation biomarkers in liquid biopsy samples of breast and prostate cancer patients. As a TRIUMPH (Translational Research in Multi-Disciplinary Program) Postdoctoral Fellow in the Keyomarsi-Hunt Lab at MD Anderson Cancer Center, Sofia has broadened her knowledge and skills in all aspects of clinical and translational cancer research, through innovative training that includes didactic coursework with parallel clinical rotations. Her research revolves around the identification of biomarkers of resistance to CDK4/6 inhibitors and assessment of novel therapeutic strategies in advanced HR+/HER2- breast cancer patients using single-cell and bulk RNA sequencing methods. She also study cyclin E-mediated immune changes in the mammary gland microenvironment during development and tumorigenesis using relevant transgenic mouse models and aim to use cyclin E as a stratifying biomarker for triple-negative breast cancer patients that are susceptible to benefit from immunotherapy.



Natthakan Thongon, PhD, *Flow cytometry-based assays dissected new mechanisms of hematopoietic stem cells' exhaustion induced by telomere shortening*

Dr. Natthakan Thongon is a post-doctoral fellow in the Department of Leukemia at the University of Texas MD Anderson Cancer Center (MDACC). She received a master in Physiology from Mahidol University, Bangkok, Thailand and a Ph.D in Biomolecular Sciences from University of Trento, Italy where she studied the mechanisms of resistance and metabolic adaptation in leukemia cells and other solid tumors. She moved from Italy to join Dr. Simona Colla's laboratory at MDACC in 2018. A Part of her research here focuses on understanding how telomere damage leads to hematopoietic stem cell's functional decline in mouse models of short telomere. This work has recently been published in Nature Communication in 2021. (Thongon et al., *Nature Communication* 2021).

She also works on the mechanisms underpinning the pathogenesis and progression of multiple myeloma (MM) in particular to understand how MM cells became resistant to persistent DNA damage activation-induced by impaired DNA repair pathways. Dr. Thongon received young investigator awards two times from International Myeloma Society in 2019 and 2021 and her works were very well received and awarded abstract achievement Awards from the International Myeloma Workshop in 2019 and 2021, and the American Hematology Society meetings (ASH) in 2019 and 2021.The support provided by ASH restart award (2020) and Dr. Colla's LLS grant allowed Dr. Thongon to discover DNA2 as a major effector of drug resistance in MM.

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Katharina Wohlan, PhD, *Clone wars: A multiplex mouse model of clonal hematopoiesis*

Katharina Wohlan is a postdoc associate in the Goodell lab in the Department of Molecular and Cellular Biology at Baylor College of Medicine. She studies normal and aberrant hematopoiesis in humans and mice and is currently working on establishing a clonal competition mouse model to study clonal hematopoiesis for known mutations found in humans.