

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Lipidomics of Health and Disease (EK30)

March 24-26, 2021 • Virtual at your computer

Scientific Organizers: Michael J.O. Wakelam (in memoriam), Steffany A.L. Bennett and Jean E. Schaffer

Sponsored by Merck & Co., Inc.

WEDNESDAY, MARCH 24

Welcoming Remarks and Dedication to Michael J.O. Wakelam (Organizers) (8am Denver/Mountain Time Start)

Steffany A.L. Bennett, University of Ottawa, Canada

Keynote Address (8:10am Denver/Mountain Time Start)

***Jean E. Schaffer**, Joslin Diabetes Center, Harvard Medical School, USA

Session Chair

Sarah Spiegel, Virginia Commonwealth University, USA
Sphingosine-1-Phosphate: From Bench to Clinic

Lipid Regulation of Metabolic Disorders I (8:40am Denver/Mountain Time Start)

***Jean E. Schaffer**, Joslin Diabetes Center, Harvard Medical School, USA

Cardiovascular Lipotoxicity

***Scott A. Summers**, University of Utah, USA
Ceramides and Metabolic Stress

Julian L. Griffin, Imperial College London, UK
Lipids and Cardiovascular and Steatotic Risk

Ilka Pinz, Maine Medical Center, USA
Short Talk: Lipidomic Signature of Atrial Tissue Differentiates Diabetic from Non-Diabetic Coronary Artery Bypass Graft Patients

Arieh Moussaieff, Hebrew University of Jerusalem, Israel
Short Talk: Shifts in Lipid Metabolic Networks during Early Development, and Possible Implications for Assisted Reproductive Technologies

Poster Session (1:30pm Denver/Mountain Time Start)

Lipid Regulation of Metabolic Disorders II (3pm Denver/Mountain Time Start)

***Christine Des Rosiers**, Montreal Heart Institute (MHI), Canada
Untargeted Lipidomics in Humans with Mitochondrial Disorders and Their Mouse Models for Disease Mechanism and Therapy Discovery

Huiyong Yin, Shanghai Institute of Nutrition and Health, China
Oxidized Lipids Regulating Atherosclerosis and Metabolism

Michelle M. Mielke, Mayo Clinic, USA
Plasma Ceramides Are Associated with Specific Cerebrovascular Pathologies

Gerard Bryan Gonzales, Wageningen University, Netherlands
Short Talk: Longitudinal Plasma Lipidome and Growth Faltering in Rural Gambian Children: Inferring Causal Linkages using Econometric Tools

Arina Nikitina, Georgia Institute of Technology, USA
Short Talk: Lipid-based Prediction of Differentiation Stage of Human Induced Pluripotent Stem Cell Colonies via MALDI Mass Spectrometry Imaging

Xunxun Shi, University of Ottawa, Canada

Short Talk: A Machine Learning Algorithm for Predicting Differential Ion Mobility Spectrometry Parameters Validated for Assessment of Glycolipid Stereoisomers

***Justin G. Chitpin**, University of Ottawa, Canada

Short Talk: BATL: Bayesian Annotations for Targeted Lipidomics

Anton I. Rosenbaum, AstraZeneca, USA
Short Talk: Phosphatidylinositol as Pharmacodynamic Biomarker for Inhibition of Endothelial Lipase by MEDI5884 in Cynomolgus Macaques and Healthy and Stable Coronary Artery Disease Subjects

THURSDAY, MARCH 25

Lipids in Cancer (8am Denver/Mountain Time Start)

***John E. Burke**, University of Victoria, Canada

Lipid Protein Interaction in Cancer

***Julie D. Saba**, University of California, San Francisco, USA
Sphingosine-1-Phosphate Lyase: The Path from Yeast Gene to Gene Therapy

Phillip T. Hawkins, Babraham Institute, UK
Regulation of the Acyl Chain Composition of Phosphoinositides

Simon T. Barry, AstraZeneca, UK
Therapeutic Targeting of PI3K-AKT Signalling in Cancer

Thao Nguyen-Tran, University of Ottawa, Canada
Short Talk: Quantification And Structural Analysis Of Disialogangliosides In Human Plasma and Serum By Nanobore Liquid Chromatography-Electrospray Ionization-Tandem Mass Spectrometry

Grace H. McGregor, University of California San Diego, USA
[NOT AVAILABLE ON DEMAND] Short Talk: Complex Glycosphingolipids in Macular Telangiectasia and Colon Cancer

Barani Govindarajan, Wayne State University, USA
Short Talk: Role of Phosphatidylinositol 4-Kinase III α in Chemokine Signaling

Rens Peeters, RadboudUMC, Netherlands
Short Talk: Tetraspanin CD37 Inhibits Lipid Metabolism in B-Cell Lymphoma

Networking Lounge (11am Denver/Mountain Time Start)

Lipids in Inflammation and Infection (3pm Denver/Mountain Time Start)

***Thao Nguyen-Tran**, University of Ottawa, Canada
Session Chair

***Valerie B. O'Donnell**, Cardiff University, UK
Oxylin Metabolism is Regulated by Mitochondrial β -Oxidation during Bacterial Inflammation

Gregory D. Fairn, University of Toronto, Canada
Palmitoylation of Coronavirus Spike Proteins and Attenuation by a Fatty Acid Synthase Inhibitor

Bruce D. Levy, Brigham and Women's Hospital, USA
Polyisoprenyl Phosphate Remodeling Regulates Dendritic Cell Antigen Uptake and Lung Inflammation

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Robert V. Stahelin, Purdue University, USA

Lipid-Dependent Assembly and Budding of Emerging Viral Pathogens

***Nihal Altan-Bonnet**, NHLBI, National Institutes of Health, USA

Sneaking Out with the Trash: Coronavirus Egress

Benjamin Schwarz, Rocky Mountain Laboratories, National Institutes of Health, USA

Short Talk: Immune Lipid Mediator Dysregulation Provides a Potential Mechanistic Link between Metabolic Comorbidities and Severe SARS-CoV-2 Infection in Humans

Lydia M. Roberts, NIAID, National Institutes of Health, USA

Short Talk: Pulmonary Infection Results in Scarred Lipidome that Impacts the Response to Secondary Challenge

FRIDAY, MARCH 26

Lipids in Neurodegeneration I (8am Denver/Mountain Time Start)

***Steffany A.L. Bennett**, University of Ottawa, Canada

Glycerolipids and Neurodegeneration

Gilbert Di Paolo, Denali Therapeutics Inc., USA

Lipids and Neuronal Disorders

Vytas A. Bankaitis, Texas A&M University, USA

Inositol Lipid Signaling and Development of the Mammalian Brain

Tony Futerman, Weizmann Institute of Science, Israel

Neuronal Pathology in Neuronopathic Forms of Gaucher Disease: A Disease in which a Simple Glycosphingolipid Accumulates

Frida Mandik, University of Luebeck, Germany

Short Talk: Mitochondrial and Autophagy Alteration in a Fatty Acid Hydroxylase-Associated Neurodegeneration Fly Model

Pavel Gerasimov, Izhevsk State Medical Academy, Russia

Short Talk: FTY 720 Improves the Phospholipid Compound of Brain Tissue and Pulmonary Surfactant in the Rodent Model of Acute Brain Ischemia

***Graeme S.V. McDowell**, University of Ottawa, Canada

Short Talk: Lipidomics Insights into Mechanistic Differences in Acid Ceramidase Loss of Function in Farber's Lipogangliosidosis and Spinal Muscular Atrophy with Progressive Myoclonic Epilepsy

Luis Angel Albarran, University of Ottawa, Canada

Short Talk: Lipogenetics of Acid Ceramidase Disorders: From Metabolism to Preclinical Treatment

Career Roundtable (12pm Denver/Mountain Time Start)

Steffany A.L. Bennett, University of Ottawa, Canada

Eamonn James Dickson, University of California, Davis, USA

Gilbert Di Paolo, Denali Therapeutics Inc., USA

Meet the Editors (1:30pm Denver/Mountain Time Start)

Shawna Buttery, STAR Protocols - Cell Press, USA

Elisabetta Argenzio, EMBO Journal, Germany

Lipids in Neurodegeneration II (3pm Denver/Mountain Time Start)

Eamonn James Dickson, University of California, Davis, USA

Cholesterol and Phosphoinositides in Neurodegeneration

***Penelope Hallett**, Harvard Medical School, USA

Lipid Dyshomeostasis Alters Alpha-Synucleinopathy

Rachel Saunders-Pullman, Mount Sinai, USA

Lipidomics in Parkinson Disease

Daiki Hayashi, University of California San Diego, USA

Short Talk: Lipidomics Coupled with Computational Approaches Reveal Unique Substrate Specificity of Human Phospholipases Toward Omega-3 and Omega-6 Fatty Acids in Phospholipids

***Irina Alecu**, University of Ottawa, Canada

Short Talk: Disruptions in Sphingolipid Metabolism and Associated Motor Impairments in an iPLA2 β Knock-out Mouse Model of Neuroaxonal Dystrophy

Melissa Vos, University of Lübeck, Germany

Short Talk: Ceramide Accumulates in PINK1-Related Parkinson's Disease Affecting Mitophagy and β -oxidation

Miroslava Cuperlovic-Culf, National Research Council, Canada

Short Talk: Analysis of Changes in Lipid Network in Parkinson's Disease through Distance Correlation and Graph Analytics