SUNDAY, JANUARY 15
Arrival and Registration

MONDAY, JANUARY 16
Welcome and Keynote Session (Joint)
Peter Tontonoz, University of California, Los Angeles, USA
Molecular Mechanisms of Cardiometabolic Health
Joshua J. Joseph, Ohio State University, USA
Talk Title to be Announced

Metabolic Flux in Health and Disease (Joint)
Joshua D. Rabinowitz, Princeton University, USA
Cellular and Systemic Metabolic Flux
Michelle F. Clasquin, Pfizer, Inc., USA
Metabolic Flux in Disease States
David E. James, University of Sydney, Australia
Phosphorylation Mechanisms Controlling Metabolic Flux
David A. Guertin, University of Massachusetts Medical School, USA
Metabolic Flux in Adipose Tissues

Workshop 1: New Tools and Technology (J4)
Kevin Hicks, University of Utah, USA
Protein-Metabolite Interactomics of Carbohydrate Metabolism Reveals Regulation of Lactate Dehydrogenase
Mangyu Choe, UC Berkeley, USA
Leveraging Genetic Tool to Manipulate Mitochondrial Physiology
Susan Fontaine Grepper†, InSphero, USA
Development of a Scalable 3D Human Adipose in vitro Model for its Application in a Multi-tissue Metabolic Disease Microphysiological System
Elizabeth R M Zunica†, USA
Ex Vivo Determination of Mitochondrial Function by High-Resolution Respirometry in Placenta Tissue Homogenates
Pedro Latorre-Muro, Dana-Farber Cancer Institute, USA
Structural Basis of Physiological Respiratory Adaptation
John Albeck, University of California, Davis, USA
Visualizing Bioenergetic Heterogeneity and its Integration with Growth Factor Signaling in Living Cells
Laura Hulea, Maisonneuve Rosemont Hospital Research Centre, Canada
Targeting Resistance to Cancer Therapy through Translational Control of Metabolism

Workshop 1 (J3)
Alice Williamson†, University of Cambridge, UK
Genetic Architecture of Post-prandial Glucose Metabolism Implicates Novel Genes Implicated in Insulin-stimulated Glucose Uptake

Mirian Krystel De Siqueira†, UCLA, USA
PPARγ-induced Regulation of PIXL Interacts with Ribosomal Machinery and Improves Glucose Metabolism
Ethan Fein†, University of Pennsylvania, USA
Delineating the Developmental Trajectory of Brown Fat in the Mouse Embryo
Kun Ling†, Mayo Clinic, USA
The Role of Primary Cilium in Beiging and Healthy Expansion of White Adipose Tissue
Shannon Reilly, Weill Medical College of Cornell University, USA
Adipocyte-secreted IL-6 Sensitizes Macrophages to IL-4 Signaling
Katie Whytock†, AdventHealth, USA
A Single-cell Atlas of Aging Human White Subcutaneous Adipose Tissue
Qiong Wang, City of Hope/BRI, USA
A Unique Adipocyte Progenitor Population Promotes Age-related Adiposity
Jonathan Trujillo†, USA
A Preadipocyte Subpopulation with Higher Energy Expenditure is More Abundant in Lean Patients

Nutrition Sensing (J4)
Joseph A. Baur, University of Pennsylvania, USA
NAD Metabolism
Heather Christofk, University of California, Los Angeles, USA
Mitochondrial Amino Acid Metabolism and Cancer
Tony K.T. Lam, Toronto General Research Institute, Canada
Gut Nutrition Sensing
Peter James Mullen, University of Southern California, USA
Short Talk: Transcriptional Control of Nutrient Sensing in Infection
Elijah Trefts, The Salk Institute for Biological Studies, USA
Short Talk: AMPK Supports Glucose Homeostasis through Maintenance of Mitochondrial Programming in vivo

Fat Depots and Inter-Organ Communication (J3)
Kendra K. Bence, Pfizer Inc., USA
Liver-Adipose Crosstalk and Cardiometabolic Risk
Clair Crewe, Washington University School of Medicine in St. Louis, USA
Adipocyte Extracellular Vesicle-Mediated Regulation of Metabolism
Jeremie Boucher, Evotec, Germany
Adipose Tissue Targets in Metabolic Disease
Njeri Sparman†, Icahn School of Medicine at Mount Sinai, USA
Short Talk: Immune Cell-adipocyte Crosstalk in the Suppression of Thermogenesis and Lipolysis

* Session Chair † Invited but not yet accepted     Program current as of November 17, 2022 Meal formats are based on meeting venue.
For the most up-to-date details, visit https://www.keystonesymposia.org.
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Bioenergetics in Health and Diseases (J4)
Scientific Organizers: Shingo Kajimura, Anna Krook and Jared Rutter
Supported by the Directors’ Fund

Adipose Tissue: Energizing Good Fat (J3)
Scientific Organizers: Silvia Corvera, Kendra K. Bence and Rana K. Gupta
January 15-19, 2023 • Keystone Resort • Keystone, CO, USA
Supported by the Directors’ Fund

Scholarship Deadline: October 11, 2022 / Abstract Deadline: October 11, 2022 / Discounted Registration Deadline: November 15, 2022

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Clifford J. Rosen, Maine Medical Center, USA
Short Talk: Bone Marrow Adipose Tissue: A Unique Compensatory Depot for Substrate Utilization During Short and Long-term Calorie Restriction

Christian Wolfrum, ETH Zürich, Switzerland
Heterogeneity of Adipocytes and their Progenitors

Patrick Seale, University of Pennsylvania, USA
Trajectories of Progenitor Cells during Adipocyte Development

Corey D. Holman, University of Pennsylvania, USA
Short Talk: A Comprehensive Characterization of the Aging-induced Decline in Beige Adipogenesis

Hahn Nahmgoong†, Seoul National University, South Korea
Short Talk: Adipose Stem Cells Determine White Fat Depot-Specificity

Poster Session 1

TUESDAY, JANUARY 17

Bioenergetics and Energy Homeostasis (Joint)
Jared Rutter, University of Utah - Biochemistry, USA
Mitochondrial Pyruvate Carrier and Metabolism

Deborah M. Muoio, Duke University Medical Center, USA
Mitochondrial Disfunction in Cardiometabolic Disease

Shingo Kajimura, Harvard Medical School, Beth Israel Deaconess Medical Center, USA
Mitochondrial Bioenergetics in Adipose Tissue

Tara A. TeSlaa†, Princeton University, USA
Short Talk: Red Muscle is a Major Site of Whole-body Glycolysis

Fabian Finger†, University of Copenhagen, Denmark
Short Talk: Cardiolipin-dependent sexual dimorphism in brown and white adipose tissue improves systemic energy homeostasis

Janane Rahbani†, McGill University, Canada
Short Talk: ADRA1A-Gq Signaling Potentiates Adipocyte Thermogenesis through CKB and TNAP

Meng (Gemma) Zhao†, Stanford University, USA
Short Talk: Phosphoproteomic Mapping Reveals Distinct Signaling Actions And Activation of Muscle Protein Synthesis by Isthmin-1

Workshop 2: Overcoming the Challenge of Health Disparities for the Discovery of Novel Therapeutics (J3)

Exercise and Bioenergetics (J4)

Anna Krook, Karolinska Institutet, Sweden
miRNA Directed Adaptations to Exercise in Skeletal Muscle

Mark A. Febbraio, Monash Institute of Pharmaceutical Sciences, Australia
Metabolic Communication During Exercise

Kei Sakamoto, Novo Nordisk Foundation Center, Denmark
Energy Management in Skeletal Muscle – The Role of AMPK

Jonathon Smith, Karolinska Institutet, Sweden
Short Talk: HES1 is an Insulin- and Exercise-responsive Transcription Factor that Regulates Skeletal Muscle Glucose Metabolism

Elizabeth Heintz, Pennington Biomedical Research Center, USA
Short Talk: Exercise Training Prevents NAFLD Progression and Restores Hepatic Fatty Acid Oxidation in Mice with Obesity

Heterogeneity of Adipocytes and their Progenitors (J3)

Rana K. Gupta, Duke University School of Medicine, USA
Regulation of Adipose Tissue Remodeling by Functionally Distinct Adipocyte Progenitors

Workshop 2: New Regulators of Bioenergetics (J4)

Darren M. Stuehr, Oregon Health & Science University, USA
Familial Mediterranean Fever as a Model for the Study of Mitochondrial Dynamics and Function

Christian Wolfrum, ETH Zürich, Switzerland
Heterogeneity of Adipocytes and their Progenitors

Abhinav Achreja, University of Michigan, USA
Unraveling the Role of PPARgamma2 and Farnesoid X Receptor in Liver Disease

Susan S. Draper, University of Pennsylvania, USA
Therapeutic Potential of Thermogenic Adipose Tissue

Hanna Tomkova, Harvard Medical School, Beth Israel Deaconess Medical Center, USA
Adipocyte Mitochondria and Systemic Metabolism

Claudia Langenberg, Queen Mary University of London, UK
Genetic Regulation of Fat Distribution

Katsu Funai†, University of Utah, USA
Short Talk: Mitochondrial Phosphatidylethanolamine Directly Regulates UCP1 to Promote Brown Adipose Thermogenesis

Chelsea Hepler, Northwestern University, USA
Short Talk: Time-restricted Feeding Mitigates Obesity through Adipocyte Thermogenesis

Workshop 2: New Regulators of Bioenergetics (J4)

Sam Lockhart, University of Cambridge, UK
Loss of Function Mutations in the Ligand Binding Domain of LXRα are Associated with Alterations in Lipid Metabolism and Liver Function Enzymes in Humans

Abhinav Achreja, University of Michigan, USA
MTHFD2 is a Collateral Lethal Target in ETC Suppressed Ovarian Cancers by Noncanonically Supplying Mitochondrial NAD+

Amber D. Lockridge, NIH/NIDDK, USA
O-GlcNACase Supports Lipid Utilization and PPARγ Activity in Heart and Liver

SooEun Kang, UIC, USA
E-cadherin and YAP regulate the metabolic reprogramming during the transition from a proliferative to a quiescent state

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**Workshop 3 (J3)**

Elizabeth Ann Killion†, Amgen, USA
Adipocyte GIPR Activity Partially Mediates the Synergistic Effect of GIPR Antagonism and GLP-1R Agonism on Body Weight Loss in vivo

Bianca Field†, University of Texas Southwestern Medical Center, USA
Insulin Sensitization of Adipocyte Progenitors

Frederikke Sass†, University of Copenhagen, USA
Engineered NKA Peptides Activate the NK2R Adipose Tissue-CNS Axis to Treat Metabolic Disease

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**Adipose Tissue Homeostasis and Remodeling (J3)**

Geneviève Marcelin, INSERM / Sorbonne Université, France
Adipose Tissue Remodeling in Obesity

Mitchell A. Lazar, Perelman School of Medicine, University of Pennsylvania, USA
Immune Homeostasis in Adipose Tissue

Edward T. Chouchani, Dana-Farber Cancer Institute, USA
ROS Signaling and Metabolism

Gregory S. Ducker†, University of Utah, USA
Short Talk: Targeting Adipose Heme Biosynthesis to Regulate Anti-Obesity BRINP2-Derived Peptide

Andrea Galmozzi, University of California, Los Angeles, USA
Short Talk: Tissue-Based Human Prohormone Prediction Identifies an Anti-Obesity BRINP2-Derived Peptide

Katrin J. Svensson, Institute of diabetes obesity and metabolism, USA
Short Talk: Direct Mitochondrial Oxidation of Lactate by Cardiac Tissue Remodeling and Chromatin Dynamics

Ferdinand von Meyenn†, ETH Zurich, Switzerland
Short Talk: Obesity Induced Long-term Remodeling of the Adipocyte Epigenome

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**Inter-Organelle Communication (J4)**

Navdeep S. Chandel, Northwestern University, USA
Targeting Mitochondria Complex I in Physiology and Disease

Kathryn E. Wellen, University of Pennsylvania, USA
Subcellular Metabolite Compartmentalization

Edward T. Chouchani, Dana-Farber Cancer Institute, USA
ROS Signaling and Metabolism

Gregory S. Ducker†, University of Utah, USA
Short Talk: Direct Mitochondrial Oxidation of Lactate by Cardiac Tissue Remodeling and Chromatin Dynamics

Andrea Galmozzi, University of California, Los Angeles, USA
Short Talk: Tissue-Based Human Prohormone Prediction Identifies an Anti-Obesity BRINP2-Derived Peptide

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**Metabolism Around the Clock (J4)**

Satchidananda Panda, The Salk Institute for Biological Studies, USA
Time-Restricted Feeding and the Mechanisms

Clara Bien Peek, Northwestern University, USA
Nutrient Regulation of Rhythms and Metabolism

Katja A. Lamia, The Scripps Research Institute, USA
Circadian Regulation of Energy Homeostasis

Mary N. Teruel, Weill Cornell Medicine, USA
Short Talk: Flattening of Circadian Glucocorticoid Oscillations Drives Insulin-mediated Obesity Independently of Diet

Josiane Broussard, Colorado State University, USA
Short Talk: Impact of Time-restricted Eating on Circulating Bioactive Lipid Species, Glucose and Insulin in Healthy Adults

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Li Ye†, The Scripps Research Institute, USA  
Short Talk: Sensory Nerves Counteract Sympathetic Functions in Adipose Tissue

Leah Holmes, University of North Carolina at Chapel Hill, Biomedical Imaging Research Center, USA  
Short Talk: In-Vivo Detection of Adipose Tissue Browning: A Multimodality Approach

Abigail Williams†, Wake Forest University School of Medicine, USA  
Short Talk: Histological Assessment of Nonhuman Primate Brown Adipose Tissue Importance of Sympathetic Innervation

Career Roundtable (Joint)

Mitochondrial Dynamics (J4)

Speaker to be Announced

Thomas Langer, Max Planck Institute for Biology of Ageing, Germany  
Mitochondrial Proteostasis

Gia K. Voeltz, University of Colorado Boulder, USA  
Mitochondria-ER Dynamics

Dhyan Chandra†, Roswell Park Comprehensive Cancer Center, USA  
Short Talk: Mitochondrial unfolded protein response in bioenergetics and cancer cell growth

Lipid Droplet Dynamics and Lipid Signaling (J3)

Yu-Hua Tseng, Joslin Diabetes Center/Harvard Medical School, USA  
Lipid Metabolites in Systemic Metabolism

Richard White, Memorial Sloan Kettering Cancer Center, USA  
Lipid Droplet Dynamics in Zebrafish

Meng C. Wang, Baylor College of Medicine/HHMI, USA  
Lipid Signals in Longevity Regulation

Leslie Rowland†, UMass Chan Medical School, USA  
Short Talk: De novo Lipogenesis Fuels Adipocyte Autophagosome Membrane Dynamics

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J4)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J3)

FRIDAY, JANUARY 20

Departure