

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Bioenergetics and Metabolic Disease (J4)

Scientific Organizers: Patrick Seale, Kendra K. Bence and P. Darrell Neuffer

Sponsored by MedImmune, Moderna Therapeutics and Novo Nordisk A/S

Organ Crosstalk in Obesity and NAFLD (J3)

Scientific Organizers: Gary J. Schwartz, Bei B. Zhang and Christoph Buettner

January 21-25, 2018 • Keystone Resort • Keystone, Colorado, USA

Sponsored by Novo Nordisk A/S

Abstract & Scholarship Deadline: September 28, 2017 / Abstract Deadline: October 26, 2017 / Discounted Registration Deadline: November 29, 2017

SUNDAY, JANUARY 21

Arrival and Registration

MONDAY, JANUARY 22

Welcome and Keynote Address (Joint)

*Gary J. Schwartz, Albert Einstein College of Medicine, USA

*Patrick Seale, University of Pennsylvania, USA

Jens C. Brüning, Max Planck Institute for Metabolism Research, Germany

Control of Integrative Physiology by the Melanocortin Circuitry

Central Modulation of Metabolism (Joint)

*Gary J. Schwartz, Albert Einstein College of Medicine, USA

*Gregory James Morton, University of Washington, USA

Matthew R. Hayes, University of Pennsylvania, USA
Metabolic Neuropeptides as Modulators of Energy Balance, Motivation and Reward

Xiaoyong Yang, Yale University School of Medicine, USA
Short Talk: O-GlcNAc Signaling in Central Nutrient Sensing and Brain-Fat-Liver Communication

Christoph Buettner, Mount Sinai School of Medicine, USA
Brain Control of Adipose Tissue Functionality as a Determinant of Hypothalamic and Liver Function

Daniel L. Marks, Oregon Health & Science University, USA
Central Mechanisms in Cancer Cachexia

Bernard B. Allan, NGM Biopharmaceuticals, USA
Short Talk: GDF15 Induces Cancer Anorexia and Cachexia through GFRAL-dependent Activation of Neuronal Circuitry

Workshop 1: Emerging Therapeutic Targets for Metabolic Disease (Joint)

*Cecile Vernochet, Pfizer, USA

*Shamina M. Rangwala, Janssen, Johnson & Johnson, USA

Philipa Levesque-Damphousse, Institut de Recherches Cliniques de Montréal, Canada
Serpina3N, an Early Biomarker of Non-Alcoholic Fatty Liver Disease

Majid Mufaqam Syed-Abdul, University of Missouri, USA
Progressive Reductions in Hepatic DNL with Increasing Doses of TVB-2640, a First-in-Class Pharmacologic Inhibitor of FASN

Senad Divanovic, Cincinnati Children's Hospital Medical Center, USA
Metabolic Reprogramming of Th17 Cells Regulates Inflammatory Vigor and NAFLD Pathogenesis

Joe S. Grimsby, MedImmune, USA
GLP-1R/GCGR Dual Agonist Reduced Obesity by Increasing Energy Expenditure due to its Effects in Brown Adipose Tissue and Browning of White Fat

Hyeonwoo Kim, Dana-Farber Cancer Institute/Harvard Medical School, USA
Identification of the Irisin Receptor and its Role in Exercise

Brian N. Finck, Washington University School of Medicine, USA
Identification of Mitochondrial Pyruvate Carrier Modulators to Treat Diabetes and NAFLD

Monica Dentice, Università degli Studi di Napoli Federico II, Italy
Muscle-Specific Action of Deiodinases Induces Metabolic Switches in Muscle thereby Influencing Systemic Energy Metabolism

Brown and Beige Fat Thermogenesis (J4)

*Jan Nedergaard, Stockholm University, Sweden

*Kristy L. Townsend, University of Maine, USA

Patrick Seale, University of Pennsylvania, USA
Molecular Regulation of Brown and Beige Adipogenesis

Sheila Collins, Vanderbilt University Medical Center, USA
Receptor Systems and Signaling Mechanisms in White and Brown Adipocytes

Evan D. Rosen, Harvard University, USA
Epigenomic Characterization of Beige Adipocyte Plasticity

Zach Gerhart-Hines, University of Copenhagen, Denmark
Short Talk: Cardiolipin Synthesis Governs Systemic Energy Homeostasis through Thermogenic Fat Mitochondria

Sweet Spots in the Brain: Central Glucose Sensing and Peripheral Glucose Homeostasis (J3)

*Christoph Buettner, Mount Sinai School of Medicine, USA

*Zachary A. Knight, University of California, San Francisco, USA

Sarah Stanley, Icahn School of Medicine at Mount Sinai, USA
New Tools to Study the Role of Glucose-Sensing Neurons

Gregory James Morton, University of Washington, USA
CNS Mechanisms Governing Diabetic Hyperglycemia

Greg S. B. Suh, New York University School of Medicine, USA
Feeding and Nutrient Sensing in Flies and Mice

Eleni Rebelos, Turku University, Finland
Short Talk: Brain-Liver-Pancreas Axis Revised with FDG-PET Imaging

Poster Session 1

TUESDAY, JANUARY 23

Keynote Address (Joint)

*Patrick Seale, University of Pennsylvania, USA

Bruce M. Spiegelman, Harvard Medical School, USA
Pathways that Control Cellular and Organismal Energy Metabolism

Adipose Plasticity and Metabolism (Joint)

*Barbara Cannon, Stockholm University, Sweden

*Li Qiang, Columbia University Medical Center, USA

Susan K. Fried, Icahn School of Medicine at Mount Sinai, USA
Sex- and Depot- Dependent Mechanisms Shaping Fat Distribution and Metabolic Health

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Philipp E. Scherer, University of Texas Southwestern Medical Center, USA

Adipose Fibrosis in Metabolic Regulation

Su Myung Jung, University of Massachusetts Medical School, USA

Short Talk: A Non-Canonical mTORC2 Signaling Pathway that Regulates Thermogenesis

Barbara B. Kahn, Beth Israel Deaconess Medical Center, Harvard Medical School, USA

Control of Systemic Metabolism by de novo Lipogenesis in Adipose

Paul Cohen, Rockefeller University, USA

Short Talk: Three-Dimensional Adipose Tissue Imaging Reveals Regional Variation in Beige Fat Biogenesis and PRDM16-Dependent Sympathetic Neurite Density

Mitochondria: Form and Function (J4)

***P. Darrell Neufer**, East Carolina University, USA

***Zhidan Wu**, Pfizer, USA

Jodi Nunnari, University of California, Davis, USA

Mitochondrial Behavior

Mary-Ellen Harper, University of Ottawa, Canada

Acute Control of the Uncoupling Proteins: Redox, ROS Feedback Loops and Post-Translational Modifications

Erin Leah Seifert, Thomas Jefferson University, USA

Short Talk: Loss of Mitochondrial Phosphate Carrier in Skeletal Muscle: Dissociation of Muscle Dysfunction from Lower ADP Phosphorylating Potential

Daniel P. Kelly, University of Pennsylvania, USA

Transcriptional Control of Mitochondrial Fuel Metabolism

Hepatic Metabolism in Obesity (J3)

***Bei B. Zhang**, Pfizer Inc., USA

***Rebecca A. Haeusler**, Columbia University, USA

Rosalind A. Coleman, University of North Carolina at Chapel Hill, USA

Compartmentalization of Hepatic Lipid Metabolism

Morris J. Birnbaum, Pfizer Inc., USA

Regulation of Hepatic Lipid Accumulation

Baoliang Song, Wuhan University, China

New Explorations on the Ancient Cholesterol Molecule

Chaofeng Yang, University of Texas Southwestern Medical Center, USA

Short Talk: Plin5 Is a Key Regulator of Lipid and Glucose Metabolism in the Liver

Poster Session 2

WEDNESDAY, JANUARY 24

Energy Expenditure and Body Weight Regulation in Humans (J4)

***Alexander S. Banks**, Harvard Medical School, USA

***Anna Krook**, Karolinska Institutet, Sweden

Herman Pontzer, Hunter College, USA

Evolutionary Origins of Obesity

Michael Rosenbaum, Columbia University Medical College, USA

Regulation of Energy Balance following Weight Reduction

Wouter D. van Marken Lichtenbelt, Maastricht University, Netherlands

Cold Exposure and Metabolic Health: Role Brown Adipose Tissue and Skeletal Muscle

Denis P. Blondin, University of Sherbrooke, Canada

Short Talk: White Adipose Tissue Lipolysis Not Just a Fuel Supply:

Re-Visiting the Significant Thermogenic Contribution of the Triglyceride-Fatty Acid Cycle in Humans Exposed to the Cold or Stimulated with a β 3-Adrenergic Receptor Agonist (Mirabegron

Steven R. Smith, AdventHealth, USA

Metabolic Flexibility and Energy Utilization

Hepatic Dysfunction in NASH and NAFLD (J3)

***Rosalind A. Coleman**, University of North Carolina at Chapel Hill, USA

***Utpal B. Pajvani**, Columbia University Medical Center, USA

Gyongyi Szabo, University of Massachusetts Medical School, USA

Inflammasome Activation Pathways in NAFLD and NASH

Samuel Klein, Washington University School of Medicine, USA

Biochemical, Metabolic and Clinical Implications in Obesity and NASH

Gerald I. Shulman, Yale University School of Medicine, USA

Targeting Mitochondria to Treat NAFLD, NASH and Type 2 Diabetes

Elizabeth J. Parks, University of Missouri, USA

Drug Development in NAFLD: From Lipogenesis to Fibrosis

Anna Laitakari, University of Oulu, Finland

Short Talk: Hypoxia-Inducible Factor Prolyl 4-Hydroxylase-2 Inhibition Protects against Fatty Liver Disease and Metabolic Dysfunction in Mice

Cellular Regulators of Bioenergetics (J4)

***Deborah M. Muoio**, Duke University Medical Center, USA

***Jorge L. Ruas**, Karolinska Institutet, Sweden

P. Darrell Neufer, East Carolina University, USA

Redox Circuit Flux and Energy Expenditure

Muthu Periasamy, Sanford Burnham Prebys Medical Discovery Institute at Lake Nona, USA

Skeletal Muscle-Based Thermogenic Mechanisms

Edward T. Chouchani, Dana-Farber Cancer Institute, USA

Short Talk: A Novel Molecular Pathway Controls Acute Activation of Adipose Tissue Thermogenesis

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Daniel Garcia, The Salk Institute for Biological Studies, USA
AMPK Control of Cellular Energetics

The Many Scars of Obesity: Systemic Fibrosis and Hypothalamic Gliosis (J3)

***Kendra K. Bence**, Pfizer Inc., USA

***Suneil K. Koliwad**, University of California, San Francisco, USA

Bart Staels, Institut Pasteur de Lille, Université Lille, France
Pathophysiology and Mechanisms of Nonalcoholic Fatty Liver Disease

Joshua Thaler, University of Washington, USA
Hypothalamic Gliosis

Ana Domingos, IRS-Fundação Calouste Gulbenkian, University of Oxford, Portugal
Sympathetic Neuroimmunity for Obesity

Utpal B. Pajvani, Columbia University Medical Center, USA
Short Talk: Notch Mediates Hepatocyte-HSC Crosstalk to Induce Fibrosis in NASH

Poster Session 3

THURSDAY, JANUARY 25

Skeletal Muscle: Use and Disuse (J4)

***Bruce M. Spiegelman**, Harvard Medical School, USA

***Erin Leah Seifert**, Thomas Jefferson University, USA

Juleen R. Zierath, Karolinska Institutet, Sweden
Epigenetic Control and the Circadian Clock: Turning Back Time on Diabetes Pathogenesis

David E. James, University of Sydney, Australia
Probing the Exercise Regulated Phosphoproteome in Skeletal Muscle

Deborah M. Muoio, Duke University Medical Center, USA
Adaptive Responses to Exercise Controlling Metabolism

Kelsey H. Fisher-Wellman, Duke Molecular Physiology Institute, USA
Short Talk: Organic Cations as a Class Lower the Efficiency of Mitochondria Energy Transduction and Protect against Nutrient-Induced Metabolic Disease

David J. Glass, Novartis Institutes for BioMedical Research, USA
Molecular Mechanisms Regulating Muscle Mass and Mitochondria

Feel Your Gut: The Gut-Brain-Food Connection (J3)

***Elizabeth J. Parks**, University of Missouri, USA

***Thomas Alexander Lutz**, University of Zürich, Switzerland

Zachary A. Knight, University of California, San Francisco, USA
Nutritional Regulation of Hunger Circuits

Kendra K. Bence, Pfizer Inc., USA
Targeting Fructose Metabolism for the Treatment of NAFLD/NASH

Daniel J. Drucker, Lunenfeld-Tanenbaum Research Institute, Canada
Gut Peptides Drive Metabolic Organs: Direct vs. Indirect Mechanisms

Mark D. Erion, Janssen Pharmaceuticals, USA
Approaches Targeting Metabolic Control and Weight Management – From Mice to Man

Nicholas Vincent DiPatrizio, University of California, Riverside, School of Medicine, USA
Short Talk: Endocannabinoids Inhibit Gut-Brain Satiety Signaling in Obesity

Poster Session 4

Workshop 2: Hot Topics in Obesity and Metabolism (Joint)

***Jacqueline M. Stephens**, Louisiana State University, USA

***Alessandro Pocai**, Janssen, Pharmaceutical Companies of Johnson & Johnson, USA

Anna Worthmann, University Medical Center Hamburg-Eppendorf, Germany
Increased Hepatic Bile Acid Production Shapes the Gut Microbiome after Cold Induced Brown Adipose Tissue Activation

Raul C. Camacho, Janssen, USA
Amino Acids as Glucagon Receptor Specific Biomarkers for Glucagon Receptor/Glucagon-Like Peptide 1 Receptor Dual Agonists

Katrin J. Svensson, Stanford University, USA
Isthmin Is a Secreted Protein that Prevents Hepatic Steatosis and Regulates Glucose Homeostasis

Anthony Scime, York University, Canada
A Novel Energy Sensing Mechanism that Synchronizes Progenitor Cell Metabolism

Chelsea Hepler, University of Texas Southwestern Medical Center, USA
Directing Visceral White Adipocyte Precursors to a Thermogenic Adipocyte Fate

Alexander Bartelt, Ludwig-Maximilians-University, Germany
Brown Fat Thermogenic Adaptation Requires Nfe2l1-Induced Proteasomal Activity

Michael D. Neinst, University of Pennsylvania, USA
Whole-Body Metabolic Fate of Branched Chain Amino Acids in Health and Insulin Resistance

Novel Effectors of Energy Metabolism (J4)

***Sheila Collins**, Vanderbilt University Medical Center, USA

***Claudio Villanueva**, University of Utah School of Medicine, USA

Shingo Kajimura, University of California, San Francisco, USA
BAT-Secreted Adipokines Regulate Energy Expenditure

Jiandie Lin, University of Michigan Medical School, USA
Endocrine Checkpoint for NASH Progression

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Ajay Chawla, University of California, San Francisco, USA
Host Immunity and Energetics

Fat on the Brain: Adipose-Brain Crosstalk (J3)

***Philipp E. Scherer**, University of Texas Southwestern Medical Center, USA

Gary J. Schwartz, Albert Einstein College of Medicine, USA
Metabolic Sensing in Adipose Tissue Nerves

Pierre Léopold, Institut Curie, Paris, France
Humoral Communication between Fat and Brain in Drosophila

Suneil K. Koliwad, University of California, San Francisco, USA
Hypothalamic Microglia as Fat Sensors: Physiology vs. Pathology

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

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

FRIDAY, JANUARY 26

Departure