



# Organ Crosstalk in Obesity and NAFLD

January 21–25, 2018 | Keystone Resort | Keystone, Colorado | USA

## Scientific Organizers:

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

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

**Christoph Buettner**, Mount Sinai School of Medicine, USA

## Joint with the meeting on *Bioenergetics and Metabolic Disease*

*Neural and humoral communication among peripheral organs and the brain is critical in coordinating whole body energy homeostasis in health and disease. Nutrient and hormone sensing take place in multiple organs with the central nervous system as a site of integration of these diverse signals, governing this coordination. Within this multi-organ framework, the liver occupies a central role in determining systemic glucose and lipid metabolism in obesity and clinically relevant metabolic pathophysiology, particularly non-alcoholic fatty liver disease (NAFLD) and fibrosis. Identification and characterization of the modes and consequences of organ cross-talk is essential to fill existing gaps in knowledge and to promote the development of therapeutic strategies to treat obesity and metabolic disease. This conference brings together experts in the novel, multidisciplinary evaluation of organ cross-talk, using innovative combinations of molecular, genetic, physiological, pharmacological and systems neuroscience approaches to: 1) Provide a unique and timely perspective, and 2) Inspire interactions directed toward basic, clinical and translational research in integrative metabolism. Finally, the joint staging of this conference in conjunction with the conference on "Bioenergetics and Metabolic Disease" will strategically leverage presentations targeting the biology of metabolism and nutrient availability in obesity with those focused on the biology of energy utilization. Taken together, this novel combination will provide a coherent, powerful and comprehensive understanding of and appreciation for the complex.*

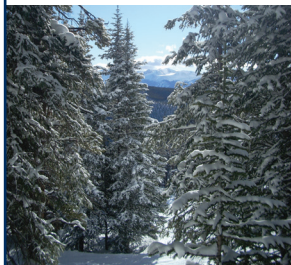
## Session Topics:

- Central Modulation of Metabolism (Joint)
- Workshop 1: Emerging Therapeutic Targets for Metabolic Disease (Joint)
- Sweet Spots in the Brain: Central Glucose Sensing and Peripheral Glucose Homeostasis
- Adipose Plasticity and Metabolism (Joint)
- Hepatic Metabolism in Obesity
- Hepatic Dysfunction in NASH and NAFLD
- The Many Scars of Obesity: Systemic Fibrosis and Hypothalamic Gliosis
- Feel Your Gut: The Gut-Brain-Food Connection
- Workshop 2: Hot Topics in Obesity and Metabolism (Joint)
- Fat on the Brain: Adipose-Brain Crosstalk

**Scholarship Application & Discounted Abstract Deadline: September 28, 2017**

**Abstract Deadline: October 26, 2017**

**Discounted Registration Deadline: November 29, 2017**



Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Meeting Hashtag: #KSorgan  
[www.keystonesymposia.org/18J3](http://www.keystonesymposia.org/18J3)

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### 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*

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

\*Christoph Buettner, Mount Sinai School of Medicine, USA

\*Zachary 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*

#### 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, Beth Israel Deaconess Medical Center, 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*

#### 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

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

**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*

### 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*

### 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*

### Poster Session 2

#### WEDNESDAY, JANUARY 24

#### 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**, HHMI/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*

#### 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  $\beta$ 3-Adrenergic Receptor Agonist (Mirabegron)*

**Steven R. Smith**, Florida Hospital, USA

*Metabolic Flexibility and Energy Utilization*

#### 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*

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**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*

### Cellular Regulators of Bioenergetics (J4)

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

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

**P. Darrell Neuffer**, 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*

**Daniel Garcia**, The Salk Institute for Biological Studies, USA

*AMPK Control of Cellular Energetics*

### Poster Session 3

#### THURSDAY, JANUARY 25

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

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

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

**Zachary 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 Pharmaceutical, 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*

#### 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*

### 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*

#### 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**, University of Nice, France

*Humoral Communication between Fat and Brain in Drosophila*

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

### 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*

**Ajay Chawla**, University of California, San Francisco, USA

*Host Immunity and Energetics*

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

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

**FRIDAY, JANUARY 26**

**Departure**