MONDAY, JANUARY 25

**Welcoming Remarks and Keynote Address (8am Denver/Mountain Time Start) (EK16)**

* Diane Mathis, Harvard Medical School, USA  
  Session Chair

* Marc Y. Donath, University Hospital Basel, Switzerland  
  Session Chair

**Bruce M. Spiegelman, Dana-Farber Cancer Institute, USA**

**Adipose Inflammation: Many Players and Many Regulatory Functions**

**Welcoming Remarks and Keynote Address (8am Denver/Mountain Time Start) (EK14)**

* Erik A. Sahai, Francis Crick Institute, UK  
  Session Chair

* Alec Kimmelman, New York University Langone Medical Center, USA  
  Session Chair

* Johanna A. Joyce, University of Lausanne, Switzerland  
  Session Chair

**Matthew G. Vander Heiden, Massachusetts Institute of Technology, USA**

**Impact of Nutrient Availability on Cancer Metabolic Dependencies**

**Immunometabolism: The Metabolic View (8:40am Denver/Mountain Time Start) (EK16)**

* Janelle S. Ayres, The Salk Institute for Biological Studies, USA  
  Session Chair

* Diane Mathis, Harvard Medical School, USA  
  Control of Metabolism by Immune Cells

* Vishwa Deep Dixit, Yale University, USA  
  Immunometabolic Regulation of Aging

* Ana Domingos, University of Oxford, UK  
  Neuroimmunometabolism

**Emily Vohralik, UNSW Sydney, Australia**

Short Talk: Regulation of Adipose Tissue Beiging by Krüppel-Like Factor 3 (KLF3) and Eosinophils

**Metabolic Effects on the Immune System (8:40am Denver/Mountain Time Start) (EK14)**

* Erik A. Sahai, Francis Crick Institute, UK  
  Session Chair

* M. Celeste Simon, University of Pennsylvania, USA  
  Metabolic Symbioses in Stressful Tumor Microenvironments

**Costas A. Lyssiotis, University of Michigan, USA**

**Metabolic Networks in the Tumor Microenvironment**

**Siva Karthik Varanasi, The Salk Institute for Biological Studies, USA**

Short Talk: Tumor Metabolism Shapes Antigen Presentation and Adaptive Immune Responses

**Meet the Editors (Joint) (2pm Denver/Mountain Time Start)**

* Ubaldo E. Martinez Outschoorn, Thomas Jefferson University/Frontiers, USA

* Stephanie Ailsa Houston, Journal of Experimental Medicine, USA

* Lise Roth, European Molecular Biology Organization, Germany

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**The CNS Microenvironment (10:45am Denver/Mountain Time Start) (EK14)**

* Alec Kimmelman, New York University Langone Medical Center, USA  
  Session Chair

**Frank Winkler, University Hospital Heidelberg, Germany**

**Brain Tumor Cells Interconnect to a Functional and Resistant Network**

**Johanna A. Joyce, University of Lausanne, Switzerland**

**Charting the Immune Landscape across Diverse Brain Cancers**

**Michael E. Pacold, New York University Medical Center, USA**

**Brain Metastasis Adaptation to the Metabolic Niche of the Central Nervous System**

**Gino Ferraro, Harvard Medical School, Massachusetts General Hospital, USA**

**Short Talk: Fatty Acid Synthesis is Required for Breast Cancer Brain Metastasis**

**Immunometabolism: The Immunologist View (10:20am Denver/Mountain Time Start) (EK16)**

* Vishwa Deep Dixit, Yale University, USA  
  Session Chair

**Christoph Hess, University Hospital Basel/University of Cambridge, Switzerland**

**From Patient to Molecular Understanding of Immunometabolism**

**Luke A. J. O’Neill, Trinity Biomedical Sciences Institute, Ireland**

**Krebs Cycle Repurposed for Cytokines**

**Janelle S. Ayres, The Salk Institute for Biological Studies, USA**

**Metabolic Adaptations in Host-Microbe Interactions**

**Ruth A. Franklin, Harvard University, USA**

**Stress Responses and Disease Tolerance**

**Katrin Andreasson, Stanford University, USA**

Short Talk: Metabolic Reprogramming of Myeloid Cells Reverses Cognitive Decline in Aging

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Catarina Sacristán, Cell Press, USA

**TUESDAY, JANUARY 26**

**Clinical Translation: Unmet Needs (8am Denver/Mountain Time Start) (EK16)**

Session Chair  
*Morris J. Birnbaum*, Retired Pfizer, Inc., USA  
Session Chair  
*Marina Mesquida*, F. Hoffmann-La Roche Ltd, Switzerland  
Anti-Inflammatory Treatment of Diabetic Eye Complications  
*Marc Y. Donath*, University Hospital Basel, Switzerland  
IL-1β in Physiology and Treatment of Metabolic Diseases  
*Tom Thuren*, Novartis Pharmaceuticals, USA  
Requirement to Implement Anti-Inflammatory Treatment of Cardiometabolic Diseases  
*Elena Carcarino*, INSERM, France  
Short Talk: Epigenomic Regulation of IL-1B Enhancers in Type 2 Diabetes

**Metastatic Colonisation (8am Denver/Mountain Time Start) (EK14)**

*Johanna A. Joyce*, University of Lausanne, Switzerland  
Session Chair  
*Ruth Scherz-Shouval*, Weizmann Institute of Science, Israel  
Session Chair  
*Sarah-Maria Fendt*, VIB-KU Leuven, Belgium  
Metabolic Rewiring Boosting Metastasis Formation  
*Mikala Egeblad*, Cold Spring Harbor Laboratory, USA  
Activating a Collaborative Innate-Adaptive Immune Response to Restrain Metastasis  
*Matthew F. Krummel*, University of California, San Francisco, USA  
Imaging the Tumor Microenvironment in Five Dimensions  
*Heather Christofk*, University of California, Los Angeles, USA  
Targeting Cancer Asparagine Dependence  
*Kevin B. Walsh*, Genentech, USA  
Short Talk: VEGF Blockade Augments CD8+ T Cell Activity by Amplifying Tumor Hypoxia

**The Pancreatic Tumor Microenvironment (10:25am Denver/Mountain Time Start) (EK14)**

*Johanna A. Joyce*, University of Lausanne, Switzerland  
Session Chair  
*Lewis C. Cantley*, Dana Farber Cancer Institute, USA  
Insulin and Cancer  
*Mara H. Sherman*, Memorial Sloan Kettering Cancer Center, USA  
Mechanisms and Consequences of Pancreatic Cancer Stromal Evolution

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**Andrea M. Amitrano**, University of Rochester School of Medicine & Dentistry, USA  
Short Talk: Regulation of CD8+ T Cell Metabolism and Migration with Optogenetics  
*Patricia Altea Manzano*, VIB-KU Leuven Center for Cancer Biology, Belgium  
[NOT AVAILABLE ON DEMAND] Short Talk: Environmental Fatty Acids Support Changes in Histone Acetylation that Promote Breast Cancer Metastasis  
*Felix Hartmann*, Stanford University, USA  
Short Talk: Single-Cell Metabolic Regulome Profiling of Human Immune Cells in the Tumor Microenvironment  
*Tanya Schild*, Weill Cornell Medicine, USA  
Short Talk: NADK Regulation by Oncogenic KRAS Signaling is Essential for PDAC

**Insulin Production and Action (10:00am Denver/Mountain Time Start) (EK16)**

*Marc Y. Donath*, University Hospital Basel, Switzerland  
Session Chair  
*Alan R. Saltiel*, University of California, San Diego, USA  
Inflammatory Links Between Obesity and Energy Metabolism  
*Bruce Verchere*, University of British Columbia, Canada  
Islet Amyloid Polypeptide and Islet Inflammation  
*Elise Dalmas*, INSERM, France  
Innate Immunity in the Pancreatic Islet Niche  
*Feyza Engin*, University of Wisconsin-Madison, USA  
Short Talk: Targeting Beta Cell Unfolded Protein Response in Type 1 Diabetes  
*Katia Monsorno*, University of Lausanne, Switzerland  
Short Talk: Lactate Metabolism in the Control of Microglial Function

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**Poster Session 1 (12pm Denver/Mountain Time Start)**

**Career Roundtable (Joint) (1pm Denver/Mountain Time Start) (EK16)**

*Donita C. Brady*, University of Pennsylvania, USA  
Matthew G. Vander Heiden, Massachusetts Institute of Technology, USA  
Tom Thuren, Novartis Pharmaceuticals, USA

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**WEDNESDAY, JANUARY 27**

**Adipose Tissues (8am Denver/Mountain Time Start) (EK16)**

*Elise Dalmas*, INSERM, France  
Session Chair  
*Bruce M. Spiegelman*, Dana-Farber Cancer Institute, USA  
Session Chair

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Tumor Metabolism and the Microenvironment (EK14)

Scientific Organizers: Erik A. Sahai, Alec Kimmelman and Johanna A. Joyce

January 25-28, 2021 • Virtual at your computer

Sponsored by AstraZeneca, Cell Research and Gilead Sciences, Inc.

KEYSTONE SYMPOSIA
on Molecular and Cellular Biology
Integrating Metabolism and Immunity (EK16)

Scientific Organizers: Marc Y. Donath, Tom Thuren, Bruce M. Spiegelman and Diane Mathis

Sponsored by AbbVie Inc., Astellas Pharma Inc., Cell Research, Merck & Co., Inc. and Novo Nordisk A/S

Rinke Stienstra, Wageningen University and RadboudUMC, Netherlands
Obesity and Diabetes: An Immunometabolic Perspective

Paul Cohen, Rockefeller University, USA
The Adipose Tissue Microenvironment in Health and Disease

Jun Wu, University of Michigan, USA
[NOT AVAILABLE ON DEMAND] Immune-Beige Adipocyte Communication

Inbar Shteingberg, Tel Aviv University, Israel
Short Talk: Distinctive Effects of Alarmins S100A8 and S100A9 on Adaptive Thermogenesis

Katelyn D. Miller, Wistar Institute, USA
Short Talk: Inhibition of Acetate Metabolism Enhances Host Anti-Tumor Immunity

Pegah Poursharifi, University of Montreal-CRCHUM, Canada
Short Talk: Suppression of ABHD6 Promotes Healthy Expansion of Adipose Tissue in Obesity

Identifying the Metabolic Dependencies of Cancer Cells (8am Denver/Mountain Time Start) (EK14)

*Erik A. Sahai, Francis Crick Institute, UK
Session Chair

Karen H. Vousden, Francis Crick Institute, UK
[NOT AVAILABLE ON DEMAND] Metabolic Control of Invasion and Metastasis

Eileen P. White, Rutgers Cancer Institute of New Jersey, USA
Autophagy and Systemic Metabolism

Navdeep S. Chandel, Northwestern University, USA
Mitochondrial Regulation of Cancer

Donita C. Brady, University of Pennsylvania, USA
New Sides for an Old Coin: Copper as an Intracellular Mediator of Autophagy viaULK1/2 Kinase Signaling

Therapeutic Targeting of Metabolism and the TME (10:10am Denver/Mountain Time Start) (EK14)

*Erik A. Sahai, Francis Crick Institute, UK
Session Chair

Shannon J. Turley, Genentech, Inc., USA
Evolving Stromal-Immune Axis in Cancer Immunology and Immunotherapy

Marcia C. Haigis, Harvard Medical School, USA
Dissecting the Tumor-Immune Metabolic Crosstalk in the Tumor Microenvironment

Valerie M. Weaver, University of California, San Francisco, USA
Interplay between Tissue Fibrosis, Metabolic Reprogramming and Inflammation in Tumor Evolution

Natalya N. Pavlova, Memorial Sloan Kettering Cancer Center, USA
Short Talk: Translation in Amino Acid-Poor Environments is Limited by tRNAGln Charging

Thomas Hanigan, The Scripps Research Institute, USA
Short Talk: Small Molecule Inhibition of OXA1L Selectively Kills ZFHX3 Mutant NSCLC from Imbalanced Cytidine Pool Expansion

Arin Aurora, University of Texas Southwestern Medical Center, USA
Short Talk: Metastasizing Melanoma Cells Exhibit Increased Dependence on the Pentose Phosphate Pathway to Manage Oxidative Stress

Liver (10:10am Denver/Mountain Time Start) (EK16)

*Gwendalyn J. Randolph, Washington University, USA
Session Chair

*Alan R. Saltiel, University of California, San Diego, USA
Session Chair

Michael Karin, University of California, San Diego, USA
Mitochondrial DNA Metabolism and IL-1 Mediated Inflammation

Evanna Mills, Dana-Farber Cancer Institute, USA
Thermogenic Fat as a Modifier of the Immune Response

Morris J. Birnbaum, Retired Pfizer, Inc., USA
Therapeutic Approaches for the Treatment of Non-Alcoholic Fatty Liver Disease

Han Wang, Ohio State University, Comprehensive Cancer Center, USA
Short Talk: Neutrophil Extracellular Traps Promote the Differentiation of Tregs through Metabolic Reprogramming to Impair Cancer Immunosurveillance in NASH Liver

Sabine Daemen, Washington University in St. Louis, USA
Short Talk: Recruited Monocyte-Derived Macrophages Regulate Hepatic Crown-Like Structure Formation and Liver Fibrosis in NASH

Jin Young Huh, Seoul National University, South Korea
Short Talk: Tank-Binding Kinase 1 Regulates the Localization of acyl-CoA synthetase ACSL1 to Control Hepatic Fatty Acid Oxidation

THURSDAY, JANUARY 28

Muscle/Cardiovascular (8am Denver/Mountain Time Start) (EK16)

*Ana Domingos, University of Oxford, UK
Session Chair

Helga Ellingsgaard, Centre for Physical Activity Research, Copenhagen, Denmark
IL-6, a Physiological Regulator of Adipose Tissue Mass in Humans

*Mark A. Febbraio, Monash Institute of Pharmaceutical Sciences, Australia
Treatment of Type 2 Diabetes and Age-Related Sarcopenia with the Designer Cytokine IC7Fc

Amy J. Wagers, Harvard University, USA
Stem Cell Metabolism and Muscle Regeneration

Shuang Zhang, Harvard Medical School/Massachusetts General Hospital, USA
Short Talk: Bone Marrow Adipocytes Fuel Fatty Acid Metabolism Directed Myelopoiesis after Myocardial Infarction

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**Dina Chokr**, INSERM, Centre de Recherche des Cordeliers, France

*Short Talk: Impact of Histone Lysine Demethylase 6B on Adipose Tissue Macrophage Plasticity*

**Intercellular Signaling Networks in the TME (8am Denver/Mountain Time Start) (EK14)**

*Karin E. de Visser*, Netherlands Cancer Institute, Netherlands

*How the Genetic Makeup of Breast Cancer Shapes the Immune Landscape*

*Erik A. Sahai*, Francis Crick Institute, UK

*Towards a Holistic Understanding of Tumor Architecture*

*Ruth Scherz-Shouval*, Weizmann Institute of Science, Israel

*Transcriptional Heterogeneity of Cancer-Associated Fibroblasts in the Tumor Microenvironment*

**Hannah Bell**, University of Michigan, USA

*Short Talk: Microbiota Metabolic Exchange Is Critical for Colorectal Cancer Redox Homeostasis and Growth*

**Christina Schmidt**, University of Cambridge, UK

*Short Talk: TRACER, a 3D-Model to Study the Influence of the Microenvironment on the Metabolic Profile of Fumarate Hydratase-Deficient Cells*

**Metabolic Compartmentalisation (10:15am Denver/Mountain Time Start) (EK14)**

*Ralph J. DeBerardinis*, University of Texas Southwestern Medical Center, USA

*Compartmentalized Metabolism in Physiological States of Growth*

**Erika L. Pearce**, Johns Hopkins University, USA

*Metabolic Regulation of the Immune Metabolism*

*Alec Kimmelman*, New York University Langone Medical Center, USA

*Metabolic Crosstalk in PDAC*

**Fabricio Loayza-Puch**, German Cancer Research Center, Germany

*Short Talk: Dual Ribosome Profiling Uncovers Metabolic Limitations in Distinct Cellular Populations of the Tumor Microenvironment*

**Marina Fukano**, Rosalind & Morris Goodman Cancer Research Centre, McGill University, Canada

*[NOT AVAILABLE ON DEMAND] Short Talk: Investigating Intra-Tumour Metabolic Heterogeneity in Triple-Negative Breast Cancer*

**Closing Remarks (11:50am Denver/Mountain Time Start) (EK16)**

**Networking Lounge (12pm Denver/Mountain Time Start) (EK16)**

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**Michael Karin**, University of California, San Diego, USA

*Session Chair*

**Eicke Latz**, University of Bonn, Germany

*Pharmacological Modulation of Cellular Metabolism Controls Macrophage Metabolism*

**Gwendalyn J. Randolph**, Washington University, USA

*Immunity and Lipoprotein Trafficking*

**Matthias Nahrendorf**, Massachusetts General Hospital, USA

*Post-Mi Emergency Hematopoiesis and Metabolism*

**Enyuan Cao**, Monash University, Australia

*Short Talk: Mesenteric Lymphatic Dysfunction Promotes Insulin Resistance and Represents a Potential Novel Treatment Target in Obesity*

**Closing Remarks (12pm Denver/Mountain Time Start) (EK16)**

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