Tumor Metabolism and the Microenvironment (EK14)
Scientific Organizers: Erik A. Sahai, Alec Kimmelman and Johanna A. Joyce
Sponsored by AstraZeneca, Cell Research and Gilead Sciences, Inc.

Integrating Metabolism and Immunity (EK16)
Scientific Organizers: Marc Y. Donath, Tom Thuren, Bruce M. Spiegelman and Diane Mathis
January 25-28, 2021 • Virtual at your computer
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MONDAY, JANUARY 25

Welcoming Remarks and Keynote Address (8am Denver/Mountain Time Start) (EK14)
*Erik A. Sahai, Francis Crick Institute, UK
*Alec Kimmelman, New York University Langone Medical Center, USA
*Johanna A. Joyce, University of Lausanne, Switzerland
Matthew G. Vander Heiden, Massachusetts Institute of Technology, USA
Impact of Nutrient Availability on Cancer Metabolic Dependencies

Welcoming Remarks and Keynote Address (8am Denver/Mountain Time Start) (EK16)
*Diane Mathis, Harvard Medical School, USA
*M. Celeste Simon, University of Pennsylvania, USA
Bruce M. Spiegelman, Harvard Medical School, USA
Adipose Inflammation: Many Players and Many Regulatory Functions

Metabolic Effects on the Immune System (8:40am Denver/Mountain Time Start) (EK14)
*Erik A. Sahai, Francis Crick Institute, UK
*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

Hilary A. Collier, University of California, Los Angeles, USA
Short Talk: Cancer-Associated Stroma Requires Autophagy to Promote Tumor Growth by Maintaining Melanoma-Associated Fibroblasts and Suppressing Th1-Type Immune Responses

Eline C. Brombacher, LUMC, Netherlands
Short Talk: Activation of Nutrient-Sensor AMPK in Tumor-Associated Dendritic Cells Promotes Tolerogenic Responses and Compromises the Anti-Tumor Immunity

Immunometabolism: The Metabolic View (8:40am Denver/Mountain Time Start) (EK16)
*Janelle S. Ayres, The Salk Institute for Biological Studies, USA
*Diane Mathis, Harvard Medical School, USA
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

The CNS Microenvironment (10:45am Denver/Mountain Time Start) (EK14)
*Alec Kimmelman, New York University Langone Medical Center, USA
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
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

Meet the Editors (Joint) (2pm Denver/Mountain Time Start)
Ubald E. Martinez Outschoorn, Thomas Jefferson University/Frontiers, USA
Stephanie Ailsa Houston, Journal of Experimental Medicine, USA
Lise Roth, European Molecular Biology Organization, Germany
Catarina Sacristán, Cell Press, USA

TUESDAY, JANUARY 26

Metastatic Colonisation (8am Denver/Mountain Time Start) (EK14)
*Johanna A. Joyce, University of Lausanne, Switzerland
*Ruth Scherz-Shouval, Weizmann Institute of Science, Israel
Sarah-Maria Fendt, VIB Leuven, Belgium
Metabolic Rewiring Boosting Metastasis Formation

The CNS Microenvironment (10:45am Denver/Mountain Time Start) (EK14)
*Erik A. Sahai, Francis Crick Institute, UK
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
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From Patient to Molecular Understanding of Immunometabolism
Luke A. J. O’Neill, Trinity Biomedical Sciences Institute, Ireland
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Ubald E. Martinez Outschoorn, Thomas Jefferson University/Frontiers, USA
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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

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

* Morris J. Birnbaum, Pfizer Inc., USA
Marina Mesquida, F. Hoffmann-La Roche Ltd, Switzerland
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

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

* Johanna A. Joyce, University of Lausanne, Switzerland
Lewis C. Cantley, Weill Cornell Medicine, USA
Insulin and Cancer

* Mara H. Sherman, Oregon Health & Science University, USA
Mechanisms and Consequences of Pancreatic Cancer Stromal Evolution

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
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
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

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

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

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

WEDNESDAY, JANUARY 27

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

* Erik A. Sahai, Francis Crick Institute, UK
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 via ULK1/2 Kinase Signaling

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

* Elise Dalmas, INSERM, France
Bruce M. Spiegelman, Harvard Medical School, USA

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

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

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Integrating Metabolism and Immunity (EK16)

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

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**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 Shteinberg**, 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**

**Evanna Mills**, Dana-Farber Cancer Institute, USA

**Thermogenic Fat as a Modifier of the Immune Response**

**Morris J. Birnbaum**, 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**

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

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

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

**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 tRNACIn 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**

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

**Poster Session 2 (2pm Denver/Mountain Time Start)**

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

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

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

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

**Mitochondrial DNA Metabolism and IL-1 Mediated Inflammation**

**Ana Domingos**, University of Oxford, UK

**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**

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

Dina Chokr, INSERM, Centre de Recherche des Cordeliers, France
Short Talk: Impact of Histone Lysine Demethylase 6B on Adipose Tissue Macrophage Plasticity

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, Max Planck Institute of Immunobiology and Epigenetics, Germany
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
Short Talk: Investigating Intra-Tumour Metabolic Heterogeneity in Triple-Negative Breast Cancer

Closing Remarks (12pm Denver/Mountain Time Start) (EK14)
Networking Lounge (12:10pm Denver/Mountain Time Start) (EK14)

Cardiovascular (10:05am Denver/Mountain Time Start) (EK16)
*Paul Cohen, Rockefeller University, USA
*Michael Karin, University of California, San Diego, USA
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

Jan Van den Bossche, Amsterdam UMC VUmc, Netherlands
Short Talk: Macrophage ATP Citrate Lyase Deficiency Stabilizes Atherosclerotic Plaques

Enyuan Cao, Monash University, Australia
Short Talk: Mesenteric Lymphatic Dysfunction Promotes Insulin Resistance and Represents a Potential Novel Treatment Target in Obesity

Closing Remarks (11:50am Denver/Mountain Time Start) (EK16)
Networking Lounge (12pm Denver/Mountain Time Start) (EK16)