

Keystone Symposia in Keystone Tumor Metabolism

Keystone Resort | Keystone, Colorado, USA | February 24–28, 2019

Scientific Organizers:

Lewis C. Cantley, Weill Cornell Medicine, USA

Karen H. Vousden, The Francis Crick Institute, UK

Jeffrey A. Engelman, Novartis Institutes of BioMedical Research, USA



Organized in collaboration with Cancer Research UK

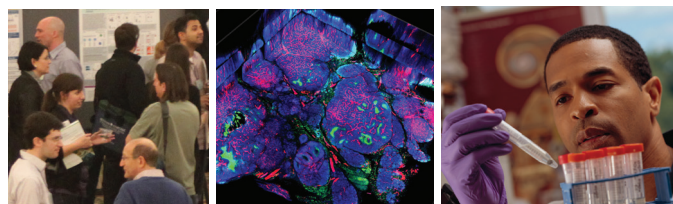
Research over the past decade has considerably enhanced our understanding of metabolic changes that occur as cancers emerge from normal tissues, and it has become apparent that tumors evolve numerous mechanisms to obtain the nutrients they need to grow and to cope with the reactive oxygen species that are generated during high rates of growth. This Keystone Symposia conference will focus on approaches to identify and therapeutically exploit the various metabolic vulnerabilities of tumor cells compared to normal tissues. The major goal is to discuss how to develop new therapies to kill tumors based on emerging knowledge about metabolic vulnerabilities. As new drugs that target metabolism enter the clinic, we need biomarkers that reveal which tumors are likely to be vulnerable and biomarkers that reveal mechanisms of resistance. Specific aims are to: 1) Understand how and why different tumor types evolve different mechanisms to obtain nutrients; 2) Explore how tumor cells protect themselves from reactive oxygen species; 3) Investigate differences in metabolism of metastatic tumors compared to primary tumors; 4) Understand how whole body metabolism relates to tumor metabolism; and 5) Enhance our ability to monitor tumor metabolism via minimally invasive imaging. The anticipated outcomes are the sharing of unpublished discoveries about mechanisms used by primary and metastatic tumors to obtain nutrients from their environment as emerging technologies for monitoring tumor metabolism *in vivo* and *ex vivo*. The conference will bring together scientists and clinicians with widely different backgrounds in preclinical models of cancer, drug discovery, drug development, imaging and clinical trials to share information about: 1) The diverse ways that tumors alter metabolism; 2) New drug targets suggested from this knowledge of tumor metabolism; 3) New technologies to monitor tumor metabolism *in vivo* and *ex vivo*; 4) Progress being made in pre-clinical studies with experimental approaches that alter tumor metabolism; and 5) Progress in human clinical trials with new drugs that target metabolism.

Plenary Session Topics:

- Cancer Cell Metabolism
- Feeding the Cancer
- Metabolism and Metastasis
- The Metabolism of ROS and Survival
- Metabolism Outside the Tumor
- Metabolic Adaptation and the Response to Therapy
- Imaging Cancer Metabolism *in vitro* and *in vivo*
- Modeling Cancer Metabolism *in vitro*

Abstract Deadline: Nov 27, 2018; Discounted Registration Deadline: Jan 8, 2019

Visit www.keystonesymposia.org/19B5 for more details.



KEYSTONE SYMPOSIA[™]
on Molecular and Cellular Biology
Accelerating Life Science Discovery
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KEYSTONE SYMPOSIA

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Tumor Metabolism (B5)

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Abstract & Scholarship Deadline: October 23, 2018 / Abstract Deadline: November 27, 2018 / Discounted Registration Deadline: January 8, 2019

SUNDAY, FEBRUARY 24

Arrival and Registration

MONDAY, FEBRUARY 25

Welcome and Keynote Address

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

Metabolic Requirements and Vulnerabilities of Cancer Cells

Cancer Cell Metabolism

Joshua D. Rabinowitz, Princeton University, USA

Folate Metabolism in Cancer

Christian Metallo, University of California, San Diego, USA

Coordinating Flux through Amino Acid and Lipid Metabolism in Cancer

Jeffrey A. Engelman, Novartis Institutes of BioMedical Research, USA

Talk Title to be Announced

Kevin Marks, Agios Pharmaceuticals, USA

Targeting Metabolic Vulnerabilities in Cancer

Short Talk(s) Chosen from Abstracts

Feeding the Cancer

Eileen P. White, Rutgers University, USA

Autophagy

Dafna Bar-Sagi, New York University School of Medicine, USA

Macropinocytosis

David M. Sabatini, Whitehead Institute for Biomedical Research, USA

Regulation of Growth by the mTOR Pathway

Short Talk(s) Chosen from Abstracts

Poster Session 1

TUESDAY, FEBRUARY 26

Metabolism and Metastasis

Martin O. Bergo, Karolinska Institutet, Sweden

Antioxidants and Metastasis

Richard White, Memorial Sloan Kettering Cancer Center, USA

A Role for Adipocytes in the Melanoma Microenvironment

Aimee L. Edinger, University of California, Irvine, USA

Starving Cancer Cells to Death by Limiting Nutrient Access

Karen H. Vousden, Crick Institute, UK

p53 in the Regulation of ROS and Metastasis

Short Talk(s) Chosen from Abstracts

The Metabolism of ROS and Survival

Navdeep S. Chandel, Northwestern University, USA

Mitochondrial Metabolism and Cancer

Thales Papagiannakopoulos, New York University School of Medicine, USA

Uncovering Metabolic Bottlenecks in KRAS-Driven Lung Cancer

David A. Tuveson, Cold Spring Harbor Laboratory, USA

ROS and Mitophagy Dependencies in Pancreatic Cancer

Short Talk(s) Chosen from Abstracts

Poster Session 2

WEDNESDAY, FEBRUARY 27

Metabolism Outside the Tumor

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

Metabolic Perturbations and Human Disease

Katja A. Lamia, The Scripps Research Institute, USA

Connecting Circadian Clocks and Cancer

Vuk Stambolic, Ontario Cancer Institute/University Health Network, Canada

Obesity And Cancer

Tak W. Mak, Campbell Family Institute for Breast Cancer, Canada

Immune Cells

Short Talk(s) Chosen from Abstracts

Metabolic Adaptation and the Response to Therapy

Alec Kimmelman, New York University Langone Medical Center, USA

Metabolic Adaption in Pancreatic Cancers

Lewis C. Cantley, Weill Cornell Medicine, USA

Enhancing Responses to Targeted Therapies through Metabolic Intervention

Kathryn E. Wellen, University of Pennsylvania, USA

Roles for Acetyl-CoA in Cancers

Short Talk(s) Chosen from Abstracts

Poster Session 3

THURSDAY, FEBRUARY 28

Imaging Cancer Metabolism in vitro and in vivo

Kevin M. Brindle, University of Cambridge, UK

Imaging Tumor Metabolism with Hyperpolarized ¹³CLabeled Metabolites – From Mouse to Man

Josephine Bunch, University of Birmingham, UK

Imaging Tumor Metabolism by Multi-Scale Mass Spectrometry Imaging

Vsevolod V. Belousov, Shemyakin–Ovchinnikov Institute of

Bioorganic Chemistry RAS, Russia

Imaging and Manipulating Redox in Cells

Short Talk(s) Chosen from Abstracts

Modeling Cancer Metabolism in vitro

Sarah-Maria Fendt, VIB Leuven, Belgium

Cancer Metabolism during Metastasis Formation

Costas A. Lyssiotis, University of Michigan, USA

Metabolic Networks in the Tumor Microenvironment

Saverio Tardito, Beatson Institute for Cancer Research, Scotland

Reformulating Cell Culture Medium to Improve the Metabolic Fidelity of in vitro Models of Cancer

Short Talk Chosen from Abstracts

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

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FRIDAY, MARCH 1

Departure