

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Adaptive ROS Signaling in Physiology and Disease (Z2)

Scientific Organizers: Michael Ristow, Navdeep S. Chandel, Marcia C. Haigis and Yvonne M. Janssen-Heininger

Supported by the Directors' Fund

## Mitochondrial Biochemistry in Health and Disease (Z1)

Scientific Organizers: Dave Pagliarini, Benjamin Tu and Alice Y. Ting

May 17-21, 2020 • Whistler Conference Centre • Whistler, British Columbia, Canada

Supported by the Directors' Fund

Abstract & Scholarship Deadline: January 21, 2020 / Abstract Deadline: February 19, 2020 / Discounted Registration Deadline: March 18, 2020

### SUNDAY, MAY 17

#### Arrival and Registration

### MONDAY, MAY 18

#### Welcome and Keynote Address (Z2)

**Sue-Goo Rhee**, Ewha Womans University, South Korea  
*ROS Signaling: The Early Days*

#### Welcome and Keynote Address (Z1)

**Vamsi K. Mootha**, Massachusetts General Hospital, USA  
*Mitochondrial Systems Biology*

#### Evolution of ROS Signaling (Z2)

**Helmut Sies**, Universitätsklinikum Düsseldorf, Germany  
*History of Oxidative Stress*

**Gerald S. Shadel**, The Salk Institute for Biological Studies, USA  
*Adaptive Mitochondrial ROS Signaling - From Yeast to Mice*

**Navdeep S. Chandel**, Northwestern University, USA  
*Signaling Targets of Mitochondrial ROS*

#### Short Talk(s) Chosen from Abstracts

#### Systems Approaches to Mitochondrial Biology II (Z1)

**Joshua D. Rabinowitz**, Princeton University, USA  
*Mitochondrial Metabolomics*

**Effie Tozzo**, Mitobridge, Inc., USA  
*Developing Novel Small Molecule Therapeutics to Improve Mitochondrial Function*

**Dave Pagliarini**, Morgridge Institute for Research at University of Wisconsin-Madison, USA  
*Defining Mitochondrial Protein Function through Systems Biochemistry*

#### Short Talk(s) Chosen from Abstracts

#### Workshop: Methods to Quantify ROS and Redox-States (Z2)

**Bryan C. Dickinson**, University of Chicago, USA

**Tobias P. Dick**, German Cancer Research Center, Germany  
*Genetically Encoded Redox Probes*

#### Stress-Responsive Quality Control (Joint)

**Cynthia Kenyon**, Calico, USA  
*Mitochondria in Aging and Longevity*

**Heidi M. McBride**, McGill University, Canada  
*Redox Regulation of Mitochondrial Remodeling*

**Cole M. Haynes**, University of Massachusetts Medical School, USA  
*Mitochondrial Unfolded Protein Response (mtUPR)*

#### Short Talk(s) Chosen from Abstracts

### Poster Session 1

### TUESDAY, MAY 19

#### Physiological Effects of ROS Signals (Z2)

**Michael P. Murphy**, University of Cambridge, UK  
*Sources and Modulators of Mitochondrial ROS*

**Eric M. Verdin**, Buck Institute For Research On Aging, USA  
*Mitochondrial Protein Acylation*

**Philipp Gut**, Nestlé Institute of Health Sciences, Switzerland  
*Autophagy and Oxidative Damage Removal*

**Michael Ristow**, Swiss Federal Institute of Technology Zurich - ETH, Switzerland

*Redox Redulation of Metabolic Diseases and Aging*

#### Short Talk(s) Chosen from Abstracts

#### Mitochondrial Translation (Z1)

**Nenad Ban†**, ETH Zürich, Switzerland  
*Talk Title to be Announced*

**L. Stirling Churchman**, Harvard Medical School, USA  
*Coordination of Mitochondrial and Cytosolic Translation*

**Alice Y. Ting**, Stanford University, USA  
*Methods to Discover Proteins and RNA at the Outer Mitochondrial Membrane*

**Tao Pan**, University of Chicago, USA  
*Mitochondrial tRNA Biology*

#### Short Talk(s) Chosen from Abstracts

#### (Seleno-) Cysteines as ROS Relays (Z2)

**Kate Carroll**, The Scripps Research Institute, USA  
*Cysteine Modifications and ROS Sensing*

**Tobias P. Dick**, German Cancer Research Center, Germany  
*Redox Relays in Metabolic Regulation*

**Vadim Gladyshev**, Brigham & Women's Hospital, USA  
*Selenocysteine-Mediated ROS Signaling*

#### Short Talk(s) Chosen from Abstracts

#### Mitochondrial Signaling and Regulation (Z1)

**Jan A.M. Smeitink**, Radboud University Nijmegen Medical Centre, Netherlands

*Mitochondrial Medicine*

**Valentina Perissi**, Boston University School of Medicine, USA  
*Metabolic Adaptation via Mitochondria Retrograde Signaling*

**Mike Ryan**, Monash University, Australia  
*Regulated Assembly of Complex I*

#### Short Talk(s) Chosen from Abstracts

### Poster Session 2

### WEDNESDAY, MAY 20

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### Retrograde Signaling (Joint)

**Marcia C. Haigis**, Harvard Medical School, USA

*Mitochondrial Signaling in the Tumor Microenvironment*

**Edward K. Owusu-Ansah**, Columbia University, USA

*Mitochondrial Complex I Activity and Stem Cell Differentiation*

**Agnieszka Chacinska**, International Institute of Molecular and Cell Biology in Warsaw, Poland

*Redox Regulation of Protein Translocation*

**Bryan C. Dickinson**, University of Chicago, USA

*Lipid Signaling in Mitochondria*

**Short Talk(s) Chosen from Abstracts**

### ROS and Aging (Z2)

**T. Keith Blackwell**, Joslin Diabetes Center and Harvard Medical School, USA

*Transcriptional Stress Response Signaling*

**Siegfried Hekimi**, McGill University, Canada

*Targets of Pro-Longevity ROS Reveal an Unexpected Program of Gene Expression that Slows Down Aging*

**Doris Germain**, Icahn of Medicine at Mount Sinai, USA

*Talk Title to be Announced*

**Short Talk(s) Chosen from Abstracts**

### Mitochondrial Metabolism (Z1)

**Benjamin Tu**, University of Texas Southwestern Medical Center, USA

*Mitochondrial Redox Signaling*

**Yasemin Sancak**, University of Washington, USA

*Mitochondrial Calcium Signaling*

**Speaker to be Announced**

**Short Talk(s) Chosen from Abstracts**

### Poster Session 3

#### THURSDAY, MAY 21

### Redox Control of Cancer and Malignant Growth (Z2)

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

*Targeting ROS for Cancer Therapy*

**Marcus Conrad**, Helmholtz Zentrum München, Germany

*Ferroptosis*

**Guido Kroemer**, Cordeliers Research Center, France

*Organelle-Specific Oxidative Stress: Adaptive versus Lethal Signaling*

**Karen H. Vousden**, Francis Crick Institute, UK

*Roles of ROS in Cancer Development and Progression*

**Short Talk(s) Chosen from Abstracts**

### Mitochondrial Biogenesis (Z1)

**Toshiya Endo**, Kyoto Sangyo University, Japan

*Assembly of Mitochondria from Proteins and Lipids*

**Maulik Patel**, Vanderbilt University, USA

*Conflicts Involving mtDNA*

**Matthew Sieber**, University of Texas Southwestern Medical Center, USA

*Electron Transport Chain Remodeling in Oogenesis*

**Short Talk(s) Chosen from Abstracts**

### Redox Control of Growth and Differentiation (Z2)

**Ruma Banerjee**, University of Michigan, USA

*Redox Biochemistry of Hydrogen Sulfide (H<sub>2</sub>S)*

**Yimon Aye**, École polytechnique fédérale de Lausanne, Switzerland

*Signaling in Our Blood: Illuminating Atypical Stress Response in Neutrophils*

**Yvonne M. Janssen-Heininger**, University of Vermont, USA

*Glutathionylation of Proteins as a Redox Signal*

**Short Talk Chosen from Abstracts**

### Mitochondrial Dynamics, Trafficking, and Interorganellar Contacts (Z1)

**Thomas L. Schwarz**, Children's Hospital Boston and Harvard Medical School, USA

*Moving and Removing Neuronal Mitochondria*

**Jennifer A. Lippincott-Schwartz**, Howard Hughes Medical Institute - Janelia Farm, USA

*Imaging Mitochondrial Dynamics and Interorganellar Interactions*

**David C. Chan**, California Institute of Technology, USA

*Mitochondrial Dynamics in Tissue Physiology*

**Maya B. Schuldiner**, Weizmann Institute of Science, Israel

*Mitochondrial Interorganellar Contacts*

**Short Talk Chosen from Abstracts**

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z2)

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z1)

#### FRIDAY, MAY 22

### Departure