

Keystone Symposia in Keystone Mitochondria in Aging and Age-Related Disease

Keystone Resort | Keystone, Colorado, USA | January 13–17, 2019

joint with the conference on *Mitochondrial Biology in Heart and Skeletal Muscle*

Scientific Organizers:

Gerald S. Shadel, The Salk Institute for Biological Studies, USA

Holly Van Remmen, Oklahoma Medical Research Foundation, USA

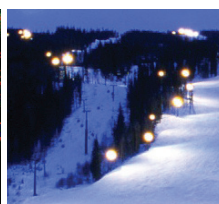
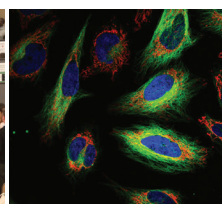
Aging is the greatest risk factor for most human diseases, yet the underlying reasons for this are not clear and hence remain under intense investigation. Mitochondria have long been associated with aging as the cornerstones of the “mitochondrial” and “free radical” theories of aging. However, that the role of mitochondria in aging is simply due to declines in ATP production and increased oxidative stress via reactive oxygen species production is giving way to more complex hypotheses. These are driven by the realization that mitochondria are dynamic and have multiple additional roles in cell and organismal physiology (e.g., signaling and immunity). The goal of this conference is to bring together investigators working at the interface of mitochondria and aging to begin to develop network theories of mitochondrial contributions to aging and age-related diseases that take into account both “old” and “new” functions of mitochondria. Topics covered will include neurodegeneration, cancer, metabolic diseases, inflammation and mitochondrial signaling pathways. This conference is being held jointly with that on “Mitochondrial Biology in Heart and Skeletal Muscle,” allowing in-depth coverage of mitochondria in cardiovascular aging and sarcopenia. It is expected that this conference will facilitate new interactions and collaborations at the interface of aging and mitochondrial biology. This should catalyze new research toward therapies for age-related diseases based on selectively targeting mitochondrial functions and signaling pathways in specific physiological and disease contexts. Workshops will highlight work from exciting new investigators so they can receive constructive feedback and develop new collaborations and research networks.

Session Topics:

- Mitochondria in Cardiovascular Aging and Disease (Joint)
- Workshop 1 (Joint)
- Mitochondrial Quality Control in Aging and Longevity
- Mitochondria in Age-Related Pathology
- Mitochondrial Metabolism in Aging
- Mitochondrial Signaling in Aging
- Mitochondria in Immunity and Inflammation
- Mitochondria in Aging Muscle (Joint)
- Workshop 2 (Joint)
- Mitochondria Dynamics and Aging

Scholarship/Discounted Abstract Deadline: Oct 9, 2018; Abstract Deadline: Oct 17, 2018; Discounted Registration Deadline: Nov 14, 2018

Visit www.keystonesymposia.org/19J2 for more details.



KEYSTONE SYMPOSIA
on Molecular and Cellular Biology
Accelerating Life Science Discovery
a 501(c)(3) nonprofit educational organization

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Mitochondria in Aging and Age-Related Disease (J2)

Scientific Organizers: Gerald S. Shadel and Holly Van Remmen

Sponsored by Astellas Pharma Inc.

Mitochondrial Biology in Heart and Skeletal Muscle (J1)

Scientific Organizers: E. Dale Abel and Andrea L. Hevener

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SUNDAY, JANUARY 13

Arrival and Registration

MONDAY, JANUARY 14

Welcome and Keynote Session (Joint)

Andrew G. Dillin, University of California, Berkeley, USA
Mitochondrial Regulation of Longevity

Vamsi K. Mootha, Massachusetts General Hospital, USA
Hypoxia as a Therapy for Mitochondrial Disease

Mitochondria in Cardiovascular Aging and Disease (Joint)

Hesham A. Sadek, University of Texas Southwestern Medical Center, USA
Heart Regeneration via Inhibition of Aerobic Respiration

Zoltan P. Arany, University of Pennsylvania, USA
New Players in Mitophagy

Short Talk(s) Chosen from Abstracts

Workshop 1 (Joint)

Short Talks Chosen from Abstracts

Mitochondrial Quality Control in Aging and Longevity (J2)

Cole M. Haynes, University of Massachusetts Medical School, USA
Mitochondrial UPR in Organismal Homeostasis and Aging

Richard J. Youle, NINDS, National Institutes of Health, USA
Mitophagy and Inflammation during Exercise and Aging

Rong Li, Johns Hopkins University School of Medicine, USA
Mitochondrial Degradation of Cytosolic Proteins by MAGIC

Short Talk(s) Chosen from Abstracts

Skeletal Muscle Mitochondria and Metabolic Regulation (J1)

Anu Suomalainen Wartiovaara, University of Helsinki, Finland
Mitochondrial Myopathies and FGF21

Deborah M. Muoio, Duke University Medical Center, USA
Mitochondrial Acetylation and Skeletal Muscle Metabolism

K. Sreekumaran Nair, Mayo Clinic, USA
Mitochondrial Protein Turnover and Metabolic Regulation

Short Talk(s) Chosen from Abstracts

Poster Session 1

TUESDAY, JANUARY 15

Mitochondria in Immunity and Inflammation (J2)

Judith Campisi, Buck Institute for Research on Aging, USA
Mitochondria in Immunosenescence and Inflammation

Katja Simon, University of Oxford, UK
Autophagy, Mitochondria and Telomeres in Aged Lymphocytes

Michael Karin, University of California, San Diego, USA
Mitochondrial DNA in Macrophage Immune Signaling

Short Talk(s) Chosen from Abstracts

Calcium Signaling in Muscle Mitochondria (J1)

Anna Raffaello, University of Padova, Italy
Role of Mitochondrial Calcium in the Maintenance of Skeletal Muscle Homeostasis

György Hajnóczky, Thomas Jefferson University, USA
Mitochondrial Dynamics and Excitation Contraction Coupling

Toren Finkel, University of Pittsburgh/UPMC, USA
Mitochondrial Calcium Uptake Mechanisms in the Heart

Stefan Feske, New York University School of Medicine, USA
Store Operated Calcium and Mitochondrial Metabolism

Short Talk(s) Chosen from Abstracts

Mitochondrial Metabolism in Aging (J2)

Marcia C. Haigis, Harvard Medical School, USA
Mitochondrial Metabolism and Proteomics in Aging

Matthew D. Hirschey, Duke University, USA
Sirtuins Control Mitochondrial Metabolism and Aging

Hazel H. Szeto, Social Profit Network Research Lab, USA
Cardiolipin-targeted peptides rejuvenate mitochondrial function, remodel mitochondria, and promote tissue regeneration during aging

Short Talk(s) Chosen from Abstracts

Novel Regulators of Mitochondrial Metabolism (J1)

Andrea L. Hevener, University of California, Los Angeles, USA
Estrogen Regulation of Skeletal Muscle Mitochondria

Daniel P. Kelly, University of Pennsylvania, USA
Cardiac Mitochondrial Remodeling in Health and Disease

Karyn A. Esser, University of Florida College of Medicine, USA
Circadian Regulation of Skeletal Muscle Mitochondrial Metabolism

Short Talk(s) Chosen from Abstracts

Poster Session 2

WEDNESDAY, JANUARY 16

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on Molecular and Cellular Biology

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Mitochondrial Signaling in Aging (J2)

Navdeep S. Chandel, Northwestern University, USA

Mitochondria as Signaling Organelles

Tamas L. Horvath, Yale School of Medicine, USA

Hypothalamic Mitochondrial Dynamics in Homeostatic Control and Aging

Gerald S. Shadel, The Salk Institute for Biological Studies, USA
Adaptive Responses to Mitochondrial Stress

Jose M. Cuezva, Universidad Autónoma de Madrid, Spain
ATPase Inhibitory Factor 1 (IF1), a Driver of Mitochondrial/Nuclear Genome Signaling Pathways

Short Talk(s) Chosen from Abstracts

Mitochondria and Cell Death (J1)

Junichi Sadoshima, Rutgers New Jersey Medical School, USA

Autophagy and Mitochondrial Dysfunction in Heart Failure

Åsa B. Gustafsson, University of California, San Diego, USA

Beclin1 as a key regulator of mitochondrial quality control

Gerald W. Dorn, II, Washington University School of Medicine, USA

Cardiomyopathy – novel cardiomyopathy of dysfunctional mitochondria

Hiroshi Sesaki, Johns Hopkins University School of Medicine, USA
Mitochondrial Dynamics and Mitophagy

Short Talk(s) Chosen from Abstracts

Mitochondrial Dynamics and Metabolism (J1)

E. Dale Abel, University of Iowa, Carver College of Medicine, USA

Paracrine Regulation of Metabolism by OPA1

Robert S. Balaban, NHLBI, National Institutes of Health, USA

The Mitochondria Reticulum of Muscle Cells

Antonio Zorzano, Institute for Research in Biomedicine, Spain

Mitofusins, Autophagy and Sarcopenia

Short Talk(s) Chosen from Abstracts

Mitochondria in Age-Related Pathology (J2)

David J. Marcinek, University of Washington, USA

The effects of mitochondrial redox stress on energetics and the proteome in aged skeletal muscle

Scott M. Plafker, Oklahoma Medical Research Foundation, USA
Mitochondria-associated Stress Sensing Proteins Govern Intracellular Homeostasis

James B. Stewart, Max Planck Institute for Biology of Ageing, Germany
Mouse Models of Mitochondrial DNA Mutations in Disease Pathology

Douglas C. Wallace, Children's Hospital of Philadelphia, USA
Mitochondria in Aging and Disease

Poster Session 3

THURSDAY, JANUARY 17

Mitochondria in Aging Muscle (Joint)

David J. Glass, Novartis Institutes for Biomedical Research, USA
Mitochondria Pathways in Aging and Sarcopenia

Holly Van Remmen, Oklahoma Medical Research Foundation, USA
Is mitochondrial oxidative stress a determining factor in sarcopenia?

Michael P. Murphy, University of Cambridge, UK
Therapeutic Targeting of Mitochondria

Johan Auwerx, École Polytechnique Fédérale de Lausanne – EPFL, Switzerland

New Insights into the Genetics of Mitochondria and Aging

Short Talk(s) Chosen from Abstracts

Workshop 2 (Joint)

Short Talks Chosen from Abstracts

Mitochondria Dynamics and Aging (J2)

Liza A. Pon, Columbia University Medical Center, USA

Mitochondrial-Cytoskeleton Interaction in Aging

Monica Driscoll, Rutgers University, USA

Throwing It Away: Neuronal Extrusion of Trashy Mitochondria as a Mito-Stasis Strategy

Lisa Norquay, Janssen, USA

Mitochondrial Dynamics and Mitophagy in Metabolic Disease

Short Talk Chosen from Abstracts

Mitochondria, Energy Expenditure and Insulin Sensitivity (J1)

Patrick Schrauwen, Maastricht University, Netherlands

Human Skeletal Muscle Mitochondrial function and Insulin Sensitivity

Mary-Ellen Harper, University of Ottawa, Canada

Mitochondrial Uncoupling and Energy Expenditure

Francesca Amati, University of Lausanne, Switzerland

Mitochondria and Substrate Switches

Short Talk Chosen from Abstracts

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J2)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J1)

FRIDAY, JANUARY 18

Departure