14TH CONGRESS

Targeting Mitochondria

WORLD MITOCHONDRIA SOCIETY

Oct. 11 » 13 2023

Berlin ◎ Germany

Welcome to the World Mitochondria Society Annual Meeting

On behalf of the Scientific Committee of the World Mitochondria Society (WMS), we are pleased to announce the organization of the 14th Annual Meeting of WMS on Targeting Mitochondria, which will be held on October 11-13, 2023 at the Steigenberger Hotel Am Kanzleramt, Berlin, Germany, & online. As the mitochondria continue to captivate the scientific community with their pivotal role in health and disease, this conference serves as a premier platform for cutting-edge discussions, knowledge exchange, and collaboration between esteemed researchers, healthcare professionals, and industry experts from around the world.

Mitochondria, often referred to as the "powerhouses of the cell", have long been recognized for their vital role in energy production. However, recent breakthroughs have unveiled their profound involvement in a myriad of cellular processes, including metabolism, aging, neurodegenerative diseases, cancer, and beyond. Harnessing this newfound understanding, researchers and medical professionals are now exploring innovative strategies to target mitochondria, aiming to unravel novel therapeutic interventions that hold immense promise for human health and well-being.

The Targeting Mitochondria 2023 Congress aims to provide a comprehensive overview of the latest advancements, challenges, and potential opportunities in the field of mitochondrial research. By covering diverse topics ranging from biodynamics and longevity to environmental factors and pharmaceutical innovations, the congress offers a platform for scientists, researchers, and experts to exchange knowledge and collaborate in advancing our understanding of mitochondria and its significance in various aspects of health and disease.

Among the sessions that will be covered:

- *Mitochondrial Activity in Health & Diseases: Standpoint 2023*
- *Mitochondrial Medicine: Where are the Targets?*
- *Mitochondria, Microgravity & Space Travel – A glance into the future*

The Targeting Mitochondria Congress is designed to foster a vibrant atmosphere of scientific exploration and collaboration, where experts from diverse disciplines can convene, exchange ideas, and forge valuable connections. Our distinguished lineup of speakers comprises world-renowned scientists, clinicians, and industry leaders who are at the forefront of mitochondrial research, providing unique insights and breakthrough discoveries. From fundamental aspects to clinical applications, the conference will span a wide range of topics, enabling participants to gain a comprehensive understanding of the latest advancements in the field.

Join us at the 14th World Congress on Targeting Mitochondria to unlock the mysteries of these extraordinary organelles, delve into groundbreaking research, and contribute to the collective effort of revolutionizing healthcare through mitochondrial targeting. Together, let us illuminate the path towards innovative therapeutic strategies and redefine the possibilities for human health.

We look forward to welcoming you to this remarkable event!

All our warmest regards.

Prof. Volkmar Weissig
President of the World Mitochondria Society
Midwestern University, USA

14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

Targeting Mitochondria 2023 Speakers

Welcome Note
Volkmar Weissig, President of the WMS, Midwestern University, USA

Brain Organoids to Model Mitochondrial Neurological Diseases
Alessandro Prigione, Heinrich Heine University (HHU) Düsseldorf, Germany

Mitochondrial Stress as a Central Biological Hub for Spaceflight Impact
Afshin Beheshti,
Blue Marble Space Institute of Science, USA

What spaceflight and bed rest have in common: A proteomic point of view
Marta Murgia, University of Padova, Italy

Mitochondria Organelle Transplantation for Neurological Diseases and Aging
Mark S. Kindy, University of South Florida, USA

Restoration of Mitochondrial Homeostasis provides Glaucoma Neuroprotection
Arupratan Das, Indiana University School of Medicine, USA

Internalization of Exogenous Mitochondria for Endothelial Corneal Dystrophy Treatment
Patrick J. Rochette,
Université Laval, Canada

Targeting Mitochondria Based on Mitochondrial Drug Delivery Systems
Yuma Yamada,
Hokkaido University, Japan

Mitochondrial Presequence Protein Translocation
Nils Wiedemann, Universität Freiburg, Germany

Metabolic effects of *Cimicfuga racemosa* extract on mitochondria and implications for the resistance against oxidative cell death and longevity
Carsten Culmsee, University of Marburg, Germany

MNRR1/CHCHD2 and Mitochondrial Dysfunction in Disease
Lawrence Grossman,
Wayne State University, USA

The Power of Epigenetics: the Patterns of mitoDNA Methylation Transmitted Across Generation
Marc-André Sirard, Université Laval, Canada

Mitochondrial Monitoring in Perioperative and Critical Care: Recent Advances & Perspectives
Egbert Mik, Erasmus MC, The Netherlands

Why a WMS Task Force
Marvin Edeas, Institut Cochin, Université de Paris, France

Vladimir Skulachev's Strategic Impact on Mitochondrial Medicine: A Tribute to his Vision, Discoveries, and Legacy
Vladimir Gogvadze, Karolinska Institutet, Sweden

Cholesterol: Why Have Mitochondrial Biologists Ignored this Critical Mitochondrial Component for Over a Century?
Ian Holt, Instituto de Investigación Sanitaria Biodonostia, Spain

Mitochondrial Transplantation: What's Next?
James McCully,
Boston Children's Hospital, USA

Protein Transport across Mitochondrial Membranes
Peter Rehling, University Medical Center Göttingen, Germany

Targeting Mitochondrial Activity in Liver Disease: Barriers and Perspectives
María Luz Martínez-Chantar, CIC bioGUNE, Spain

Liver Regeneration: Strategic Role of Mitochondria
Jiri Neuzil, Griffith University, Australia

Targeting MCJ/DnaJC15 to modulate mitochondrial respiration in disease
Mercedes Rincon, University of Colorado Anschutz School of Medicine, USA

Repairing Marginal Kidneys With Mitochondrial Transplantation: A New Powerful Tissue Engineering Tool That Will Change the Transplant Landscape
Giuseppe Orlando, Wake Forest University, USA

Cardiac MitoMed: From Bench to Bedside
Sang-Bing Ong, The Chinese University of Hong Kong, China

Defining the molecular nature of the mitochondrial permeability transition pore(s)
Paolo Bernardi, the University of Padova, Italy

Personalized Medicine in Mitochondrial Health and Disease: Myth and Reality
Ciro Leonardo Perri, the University of Bari Aldo Moro, Italy

WASF3 disrupts mitochondrial respiration and may mediate exercise intolerance in ME/CFS
Paul Hwang, National Heart, Lung and Blood Institute, USA

www.wms-site.com

Wednesday, October 11, 2023

Dedicated to Mitochondria Workshop

13h30 – Registration for Workshop and Targeting Mitochondria 2023 Congress

Mitochondria Workshop 2023: How to Evaluate Mitochondria Function?

Session 1: How to evaluate and analyze mitochondria function in 2023

Session 2: Methods for analyzing mitochondrial function: Bioenergetics

15h30 Coffee Break

Session 3: Methods for analyzing mitochondria: Biogenesis, dynamics, and mitophagy

Session 4: Biochemical strategies for the diagnosis of mitochondrial disorders

Presentation of Practical Cases, Workshop report & Interactive Discussion

18h30 End of the Workshop

Naïg Gueguen

Mitovasc Institute, Mitolab team,
INSERM 1083, CNRS 6215,
Centre Hospitalier Universitaire d'Angers
Angers, France

For full agenda, registration, and information, please follow this link

MITOCHONDRIA WORKSHOP

– Day One –

Thursday, October 12, 2023

8h00 – Materials Distribution & Welcome Coffee

8h50 – Welcome Note

World Mitochondria Society Now & Tomorrow
Volkmar Weissig, *President of the World Mitochondria Society, Midwestern University, USA*

Why a WMS Task Force?
Marvin Edeas, *WMS Founder & Chairman of The Scientific Committee, Université de Paris, INSERM 1016, Institute Cochin, France*

9h00 – **Vladimir Skulachev's Strategic Impact on Mitochondrial Medicine: A Tribute to his Vision, Discoveries, and Legacy**
Vladimir Gogvadze, Karolinska Institutet, Sweden

Session 1 – Mitochondrial Activity in Health & Diseases: Standpoint 2023

9h30 – **Cholesterol: Why Have Mitochondrial Biologists Ignored this Critical Mitochondrial Component for Over a Century?**
Ian Holt, Instituto de Investigación Sanitaria Biodonostia, Spain

9h55 – **Brain Organoids to Model Mitochondrial Neurological Diseases**
Alessandro Prigione, Heinrich Heine University (HHU) Düsseldorf, Germany

10h20 - Coffee Break, Networking & Poster Session

11h00 – **The Power of Epigenetics: The Patterns of mitoDNA Methylation Transmitted Across Generations**
Marc-André Sirard, Université Laval, Canada

11h25 – **WASF3 disrupts mitochondrial respiration and may mediate exercise intolerance in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)**
Paul Hwang, National Heart, Lung and Blood Institute, USA

11h50 – **Defining the Molecular Nature of the Mitochondrial Permeability Transition Pore(s)**
Paolo Bernardi, University of Padova, Italy

12h15 – Lunch Break, Networking & Poster Session

14h00 – **Protein Transport across Mitochondrial Membranes**
Peter Rehling, University Medical Center Göttingen, Germany

14h25 – **Mitochondrial Presequence Protein Translocation**
Nils Wiedemann, Universität Freiburg, Germany

14h50 – **Mitochondrial Monitoring in Perioperative and Critical Care: Recent Advances & Perspectives**
Egbert Mik, University Medical Center Rotterdam, The Netherlands

Session 2 – Mitochondrial Medicine: Where are the Targets?

15h15 – **Mitochondrial Transplantation: What's Next?**
James McCully, Harvard Medical School Department of Cardiac Surgery Boston Children's Hospital, USA

15h40 – **Repairing Marginal Kidneys With Mitochondrial Transplantation: A New Powerful Tissue Engineering Tool That Will Change the Transplant Landscape**
Giuseppe Orlando, Wake Forest University, USA

16h05 – **Mitochondria Organelle Transplantation for Neurological Diseases and Aging**
Mark S. Kindy, University of South Florida, USA

16h30 – Coffee Break, Networking & Poster Session

17h00 – **Targeting Mitochondria Based on Mitochondrial Drug Delivery Systems (DDS)**
Yuma Yamada, Hokkaido University, Japan

17h25 – **Metabolic effects of *Cimicfuga racemosa* extract on mitochondria and implications for the resistance against oxidative cell death and longevity**
Carsten Culmsee, University of Marburg, Germany

17h50 – **Translational insights from Targeting Mitochondria in Rare Diseases**
David Brown, Stealth BioTherapeutics, USA

18h00 Short Oral Presentations *(3 slots)*

Cardiomyocyte MTFP1 Loss Induces Heart Failure Fostered by Innate Immunity
Erminia Donnarumma, Institute Pasteur, France

Granulosa Cell Mitochondrial AKT Signaling Regulated Ovarian Follicullogenesis and Whole-Body Metabolism
Ping H Wang, City of Hope National Medical Center, USA

18h30 End of Day 1

20h00 Meet the Speakers Dinner (for ticket holders only)

– Day Two –

Friday, October 13, 2023

8h00 – Welcoming of attendees

8h55 – Day 2 opening session

Session 2 – Mitochondrial Medicine: Where are the Targets? *(Continued)*

9h00 – **Restoration of Mitochondrial Homeostasis Provides Glaucoma Neuroprotection**
Arupratan Das, Indiana University School of Medicine, USA

9h25 – **Cardiac MitoMed: From Bench to Bedside**
Sang-Bing Ong, The Chinese University of Hong Kong, China

9h50 – **Personalized Medicine in Mitochondrial Health and Disease: Myth and Reality**
Ciro Leonardo Pierri, University of Bari Aldo Moro, Italy

10h15 - Coffee Break, Networking & Poster Session

11h00 – **Internalization of Exogenous Mitochondria for Endothelial Corneal Dystrophy Treatment**
Patrick J. Rochette, Université Laval, Canada

11h25 – **Targeting Mitochondrial Activity in Liver Disease: Barriers and Perspectives**
María Luz Martínez-Chantar, CIC bioGUNE, Spain

11h50 – **Liver Regeneration: Strategic Role of Mitochondria**
Jiri Neuzil, Griffith University, Australia

12h15 Short Oral Presentations *(3 slots)*

Enhanced Activity of Mitochondrial Enzyme Fumarylacetoacetate Domain Containing Protein 1 (FAHD1) Reduces Cellular ROS Levels in Human Bone Osteosarcoma Epithelial Cells
Alexander K.H. Weiss, University of Innsbruck, Austria

Biological Activity and Antioxidant Capacity of Novel Mitochondria-Targeted Estrogens
Geovanni Alberto Ruiz Romero, Centro De Investigación Científica Y De Educación Superior De Ensenada, Mexico

12h45 – Lunch Break, Networking & Poster Session

13h45 – **MNRR1/CHCHD2 and Mitochondrial Dysfunction in Disease**
Lawrence Grossman, Wayne State University, USA

14h10 – **Targeting MCJ/DnaJC15 to Modulate Mitochondrial Respiration in Disease**
Mercedes Rincon, University of Colorado Anschutz School of Medicine, USA

Session 3 – Mitochondria, Microgravity & Space Travel: A glance into the future

14h35 – **Mitochondrial Stress as a Central Biological Hub for Spaceflight Impact**
Afshin Beheshti, NASA Ames Research Center, USA

15h00 – **What Spaceflight and Bed Rest Have in Common: A Proteomic Point of View**
Marta Murgia, University of Padova, Italy

15h25 - Coffee Break & Poster Session

15h55

Session 4 – Short Oral Presentations

MITO-DREADD: A New Tool to Increase Mitochondrial Activity and Rescue Cognitive Alteration
Etienne Hebert-Chatelain, University of Moncton, Canada

Exploiting Structural Variations in Highly Conserved Mitochondrial Complex III to Develop Antifungal Agents
Di Xia, National Cancer Institute, NIH, USA

Platelet-Derived Mitochondria Modulate the Bioenergetic Phenotype of Human Neutrophils
Marie-France N. Soucy, Université de Moncton, Canada

Mitochondrial Gene Expression is Required for Platelet Function and Blood Clotting
Jessica Baker, The University of Western Australia, Australia

NME3 is a Gatekeeper of DRP-1-Dependent Mitophagy
Zee-Fen Chang, National Taiwan University, Taiwan

Cryo-EM Studies Reveal the Inactivation Mechanism of ATP Synthase Leak Channel and Its Contribution to Mitochondrial Permeability Transition
Nelli Mnatsakanyan, Penn State University College of Medicine, USA

ATFS-1 Counteracts Mitochondrial DNA Damage by Promoting Repair Over Transcription
Chuanyang Dai, University of Queensland, Australia

TPP-driven Mitochondria-targeting Compounds as Agrochemicals
Zhaohai Qin, China Agricultural University, China

17h30 Concluding Remarks and Awards

18h00 End of World Mitochondria Society's Annual Meeting

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