

14TH
CONGRESS

Targeting Mitochondria



Oct. 11 » 13 2023
Berlin © Germany



14th World Congress on Targeting Mitochondria

October 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



Why a WMS Task Force

Marvin Edeas, Institut Cochin, Université de Paris, France



Brain Organoids to Model Mitochondrial Neurological Diseases

Alessandro Prigione, Heinrich Heine University (HHU) Düsseldorf, Germany



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

Vladimir Gogvadze, Karolinska Institutet, Sweden



Mitochondrial Stress as a Central Biological Hub for Spaceflight Impact

Afshin Beheshti, Blue Marble Space Institute of Science, USA



Cholesterol: Why Have Mitochondrial Biologists Ignored this Critical Mitochondrial Component for Over a Century?

Ian Holt, Instituto de Investigación Sanitaria Biodonostia, Spain



What spaceflight and bed rest have in common: A proteomic point of view

Marta Murgia, University of Padova, Italy



Mitochondrial Transplantation: What's Next?

James McCully, Boston Children's Hospital, USA



Mitochondria Organelle Transplantation for Neurological Diseases and Aging

Mark S. Kindy, University of South Florida, USA



Protein Transport across Mitochondrial Membranes

Peter Rehling, University Medical Center Göttingen, Germany



Restoration of Mitochondrial Homeostasis provides Glaucoma Neuroprotection

Arupratan Das, Indiana University School of Medicine, USA



Targeting Mitochondrial Activity in Liver Disease: Barriers and Perspectives

María Luz Martínez-Chantar, CIC bioGUNE, Spain



Internalization of Exogenous Mitochondria for Endothelial Corneal Dystrophy Treatment

Patrick J. Rochette, Université Laval, Canada



Liver Regeneration: Strategic Role of Mitochondria

Jiri Neuzil, Griffith University, Australia



Targeting Mitochondria Based on Mitochondrial Drug Delivery Systems

Yuma Yamada, Hokkaido University, Japan



Targeting MCJ/DnajC15 to modulate mitochondrial respiration in disease

Mercedes Rincon, University of Colorado Anschutz School of Medicine, USA



Mitochondrial Presequence Protein Translocation

Nils Wiedemann, Universität Freiburg, Germany



Repairing Marginal Kidneys With Mitochondrial Transplantation: A New Powerful Tissue Engineering Tool That Will Change the Transplant Landscape

Giuseppe Orlando, Wake Forest University, USA



Metabolic effects of *Cimicifuga racemosa* extract on mitochondria and implications for the resistance against oxidative cell death and longevity

Carsten Culmsee, University of Marburg, Germany



Cardiac MitoMed: From Bench to Bedside

Sang-Bing Ong, The Chinese University of Hong Kong, China



MNRR1/CHCHD2 and Mitochondrial Dysfunction in Disease

Lawrence Grossman, Wayne State University, USA



Defining the molecular nature of the mitochondrial permeability transition pore(s)

Paolo Bernardi, the University of Padova, Italy



The Power of Epigenetics: the Patterns of mitoDNA Methylation Transmitted Across Generation

Marc-André Sirard, Université Laval, Canada



Personalized Medicine in Mitochondrial Health and Disease: Myth and Reality

Ciro Leonardo Perri, the University of Bari Aldo Moro, Italy



Mitochondrial Monitoring in Perioperative and Critical Care: Recent Advances & Perspectives

Egbert Mik, Erasmus MC, The Netherlands



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



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

Wednesday, October 11, 2023

Dedicated to Mitochondria Workshop

13h00 – Badges & Program Distribution for Workshop Attendees

14h00

Mitochondria Workshop 2023: How to Evaluate Mitochondria Function?

Session 1: Methods for analyzing mitochondrial function: Bioenergetics

Session 2: Methods for analyzing mitochondria: Biogenesis, dynamics and mitophagy

15h30 *Coffee Break*

Session 3: Biochemical strategies for the diagnosis of mitochondrial disorders

Presentation of Practical Cases & Interactive Discussion

17h30 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**

- Conference Badges & Agenda can be delivered on Wednesday, October 11 from 16h to 17h30 on Floor 1
 - Getting Together Drink & Cocktail will be held after the workshop at 18h00 on Floor 1
 - To upgrade your registration and register to the workshop too, please [click here](#).



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

– 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*



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

Chairs : Volkmar Weissig & Marvin Edeas



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

Vladimir Gogvadze, Karolinska Institutet, Sweden



9h20 – The Vladimir Skulachev Vision: Advances in the Development of Mitochondria-Targeted Pharmaceuticals

Maxim Skulachev, Mitotech, Luxembourg

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

Talk Duration : 15 minutes for presentation + 5 minutes for discussion



9h30 – Cholesterol: Why Have Mitochondrial Biologists Ignored this Critical Mitochondrial Component for Over a Century?

Ian Holt, Instituto de Investigación Sanitaria Biodonostia, Spain



9h45 – Brain Organoids to Model Mitochondrial Neurological Diseases

Alessandro Prigione, Heinrich Heine University Düsseldorf, Germany



10h00 – The Power of Epigenetics: The Patterns of mitoDNA Methylation Transmitted Across Generations

Marc-André Sirard, Université Laval, Canada

10h15 – Panel Discussion

10h30 - Coffee Break, Networking & Poster Session



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

Chairs : Ian Holt & Egbert Mik



11h15 – 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



11h30 – Defining the Molecular Nature of the Mitochondrial Permeability Transition Pore(s)
Paolo Bernardi, University of Padova, Italy



11h45 – Protein Transport across Mitochondrial Membranes
Peter Rehling, University Medical Center Göttingen, Germany



12h00 – Mitochondrial Presequence Protein Translocation
Nils Wiedemann, Universität Freiburg, Germany

12h15 – Panel Discussion

12h35 – Lunch Break, Networking & Poster Session



14h00 – Mitochondrial Monitoring in Perioperative and Critical Care: Recent Advances & Perspectives
Egbert Mik, University Medical Center Rotterdam, The Netherlands

14h15 Short Oral Presentations

Talk Duration : 5 minutes for presentation + 2 minutes for discussion

Interferometry Light Microscopy for Quality Control of Isolated Mitochondria for Biotherapy

Sabah Mozafari, Université Paris Cité, France

Intercellular Mitochondrial Transfer: Real-Time Monitoring and Lineage Cell Tracing with Novel Reporter Systems Unveil Roles in Cancer Innervation

Simon Grelet, University of South Alabama, USA

High Sucrose Diet Triggers Subunit I Tyrosine 304 Phosphorylation of Cytochrome C Oxidase, Causing Liver Respiratory Dysfunction in the Cohen Diabetic Rat Model

Tasnim Arroum, Wayne State University, USA



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

Session 2 – Mitochondrial Medicine: Where are the Targets?

Talk Duration : 15 minutes for presentation + 5 minutes for discussion

Chairs : James McCully & Carsten Culmsee



14h35 – Introduction - Mitochondrial Transplantation: What's Next?

James McCully, Harvard Medical School Department of Cardiac Surgery Boston Children's Hospital, USA



14h50 – Repairing Marginal Kidneys With Mitochondrial Transplantation: A New Powerful Tissue Engineering Tool That Will Change the Transplant Landscape

Giuseppe Orlando, Wake Forest University, USA



15h05 – Mitochondria Organelle Transplantation for Neurological Diseases and Aging

Mark S. Kindy, University of South Florida, USA

15h20 – Panel Discussion

15h35 – Coffee Break, Networking & Poster Session



16h15 – Targeting Mitochondria Based on Mitochondrial Drug Delivery Systems (DDS)

Yuma Yamada, Hokkaido University, Japan



16h30 – Metabolic effects of *Cimicifuga racemosa* extract on mitochondria and implications for the resistance against oxidative cell death and longevity

Carsten Culmsee, University of Marburg, Germany



16h45 – Translational insights from Targeting Mitochondria in Rare Diseases

David Brown, Stealth BioTherapeutics, USA

16h55 – Panel Discussion

Chair : Alessandro Prigione

17h05 Short Oral Presentations

Talk Duration : 5 minutes for presentation + 2 minutes for discussion

Mitochondrial Dysfunctions in Psoriatic Mesenchymal Stem Cells

Mariangela Di Vincenzo, Università Politecnica delle Marche, Italy

Cardiomyocyte MTFP1 Loss Induces Heart Failure Fostered by Innate Immunity

Erminia Donnarumma, Institute Pasteur, France

Mitochondrial Cargo in Extracellular Vesicles Promotes Microglia-Mediated Proinflammatory Response

Carla Lopes, University of Coimbra, Portugal



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

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

The Influence of Maternal Obesity on Offspring Oocyte Mitochondrial Ultrastructure in Primordial and Activated Follicles. Interaction with the Offspring Diet
Inne Xhonneux, University of Antwerp, Belgium

Restoration of Mitochondrial Homeostasis in Embryos Derived from Metabolically Compromised Oocytes Using Mitoquinone. Insight from a Bovine *in vitro* Model
Waleed Marei, University of Antwerp, Belgium

Mismatch of Mitochondrial and Nuclear Genomes Leads to Altered Fitness
Marion Bonneau, University College London, United Kingdom

Estrogen Metabolism and Mitochondrial Function in the Pathogenesis of Idiopathic Pulmonary Arterial Hypertension
Valentina Parra, Universidad de Chile, Chile

18h00 End of Targeting Mitochondria 2023 Day 1

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



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

– Day Two –

Friday, October 13, 2023

8h00 – Welcoming of attendees

8h25 – Day 2 opening session

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

Talk Duration : 15 minutes for presentation + 5 minutes for discussion

Chairs : Maik Hüttemann & Vladimir Gogvadze



8h30 – **Restoration of Mitochondrial Homeostasis Provides Glaucoma Neuroprotection**

Arupatan Das, Indiana University School of Medicine, USA



8h45 – **Cardiac MitoMed: From Bench to Bedside**

Sang-Bing Ong, The Chinese University of Hong Kong, China



9h00 – **Personalized Medicine in Mitochondrial Health and Disease: Myth and Reality**

Ciro Leonardo Pierrri, University of Bari Aldo Moro, Italy



9h15 – **Internalization of Exogenous Mitochondria for Endothelial Corneal Dystrophy Treatment**

Patrick J. Rochette, Université Laval, Canada

9h30 – **Panel Discussion**

9h50 **Short Oral Presentations**

Age-related changes in energy metabolism in peripheral mononuclear blood cells (PBMC) and the brains of cognitively healthy seniors

Gunter P. Eckert, Justus-Liebig-University of Giessen, Germany

MITO-DREADD: A New Tool to Increase Mitochondrial Activity and Rescue Cognitive Alteration

Etienne Hebert-Chatelain, University of Moncton, Canada

Incorporation of Exogenous Mitochondria Amplifies ATP Production and Safeguards Fibroblasts against Oxidative Stress

Yosif El-Darawish, LUCA Science Inc., Japan

Platelet-Derived Mitochondria Modulate the Bioenergetic Phenotype of Human Neutrophils

Marie-France N. Soucy, Université de Moncton, Canada

Development of Mitochondria-Inspired Lipopolyplexes for Gene Delivery

Ioannis Tsiachlis, National and Kapodistrian University of Athens, Greece



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

Mitochondrial Encapsulation Technology for Mitochondrial Transplantation Therapy

Wang Yonghui, Åbo Akademi University, Finland

10h35 - Coffee Break, Networking & Poster Session

Chairs : Patrick J. Rochette & Lawrence Grossman



11h15 – Liver Regeneration: Strategic Role of Mitochondria

Jiri Neuzil, Griffith University, Australia



11h30 – MNRR1/CHCHD2 and Mitochondrial Dysfunction in Disease

Lawrence Grossman, Wayne State University, USA



11h45 – Targeting Mitochondrial Activity in Liver Disease: Barriers and Perspectives

María Luz Martínez-Chantar, CIC bioGUNE, Spain



12h00 – Targeting MCJ/DnaJC15 to Modulate Mitochondrial Respiration in Disease

Mercedes Rincon, University of Colorado Anschutz School of Medicine, USA

12h15 – Panel Discussion

12h35 – Lunch Break, Networking & Poster Session

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

Talk Duration : 15 minutes for presentation + 5 minutes for discussion

Chairs : Afshin Beheshti & Jiri Neuzil



13h45 – Mitochondrial Stress as a Central Biological Hub for Spaceflight Impact

Afshin Beheshti, NASA Ames Research Center, USA



14h00 – What Spaceflight and Bed Rest Have in Common: A Proteomic Point of View

Marta Murgia, University of Padova, Italy

14h15 – Panel Discussion

14h25 Short Oral Presentations

Gravitational and Mechanical Forces Drive Mitochondrial Translation

Taisei Wakigawa, University of Tokyo, Japan

Examination of Mitochondrial DNA Variants and their Association with Brain Structural Measures and Symptom Severity in Bipolar Disorder

Ana Mendes-Silva, Campbell Family Mental Health Research Institute, Canada



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

Mitochondria and ROS Signaling as Key Players in Arrhythmogenic Cardiomyopathy? A Molecular Screening-Based Answer

Réginald Philippe, Eurac Research, Italy

The mitochondrial Ca²⁺ Uniporter (MCU) is a molecular target for mobility by stimulating muscle performance and protecting chondrocytes during osteoarthritis

Umberto De Marchi, Nestlé Institute of Health Sciences, Nestlé Research, Switzerland

Mitochondrial Pyruvate Metabolism is Disturbed in Polymicrobial Sepsis

Louise Nuytens, Ghent University – Inflammation Research Center, Belgium

Mitochondrial DNA Variants and Microbiota: An Experimental Strategy to Identify Novel Therapeutic Targets in Chronic Inflammatory Diseases

Mira Hirose, University of Lübeck, Germany

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

15h25 - Coffee Break & Poster Session

Chairs: Paul Hwang & Giuseppe Orlando

15h55 Session 4 – Short Oral Presentations

Talk Duration : 5 minutes for presentation + 2 minutes for discussion

Opening up the World to Mitochondrial Issues (Online Talk)

Gordon Freedman, National Laboratory for Education Transformation, USA

Exploiting Structural Variations in Highly Conserved Mitochondrial Complex III to Develop Antifungal Agents

Di Xia, National Cancer Institute, NIH, USA

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

Adjuvant Therapy with Molecular Hydrogen Improved Platelet Mitochondrial Bioenergetics and Coenzyme Q₁₀ Level in Patients with Non-Alcoholic Fatty Liver Disease

Zuzana Sumbalová, Comenius University in Bratislava, Slovakia



14th World Congress on Targeting Mitochondria

October 11-13, 2023 – Berlin, Germany

Effect of Time-Restricted Feeding on Mitochondria in Skeletal Muscle of Aged Mice

Andrea Del Campo, Pontificia Universidad Catolica De Chile, Chile

Mitochondrial Involvement in Cardiac Electrophysiological Injury Due to Inhalation Exposure to Electronic Nicotine Delivery Systems (ENDS)

Sami Noujaim, University of South Florida, USA

Super-Resolution Imaging of Voltages in the Interior of Individual, Vital Mitochondria

Peter Burke, University of California, USA

ATP Synthase C-Subunit Upregulation Causes Mitochondrial Dysfunction in Shank3 Mouse Model of Autism

Wajeha Hamoudi, Hebrew University of Jerusalem, Israel

Mitochondrial Transplantation Therapy Against Ifosfamide Induced Toxicity on Rat Renal Proximal Tubular Cells (Online talk)

Melika Mashhadi, Shahid Beheshti University of Medical Sciences, Iran

Neural Precursors Derived from Trisomy 21 iPSCs Show a Deficiency in Mitophagy (Online Talk)

Nunzia Mollo, University Federico II, Naples, Italy

17h30 Concluding remarks & Targeting Mitochondria 2023 Awards

Comments on Why a Mitochondria Task Force Dedicated to:

- **Mitochondrial Transfer & Tunneling Nanotubes (TNTs)**
- **Mitochondrial Oscillation and Resonance: Impact on ATP Production and Distribution in Health and Diseases**

Marvin Edeas, Université de Paris, INSERM 1016, Institute Cochin, France

18h00 End of World Mitochondria Society's Annual Meeting



Press Releases Facebook LinkedIn Scientific News

For more information, please visit: www.wms-site.com or contact us at [mitochondria\[at\]wms-site.com](mailto:mitochondria[at]wms-site.com).