Targeting Mitochondria

Oct. 26 » 28 2022
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 13th Annual Meeting of WMS on Targeting Mitochondria, which will be held on October 26-28, 2022 at the Steigenberger Hotel Am Kanzleramt, Berlin, Germany, & online.

After the great success of the 12th WMS Meeting in 2021 that was held virtually with interactive sessions for discussion, we are hoping that personal interactions among colleagues from around the world will be a major feature of our 13th World Annual Meeting.

Targeting Mitochondria 2022 Sessions:

- Mitochondrial Dysfunctions and Dynamics in Chronic Diseases
- Mitochondria Transplantation and Transfer
- Extracellular Vesicles & Mitochondria: The Target
- Nuclear-Mitochondrial Interactions and their Effect on Longevity and Health
- Translational Therapies - Focus on Infrared Therapies
- WMS Challenges in the Acceleration of Mitochondrial Medicine

Among the blooming topics that will be highlighted: mitochondrial signaling, mitochondrial diseases, cancer, cardiovascular diseases, stroke, sepsis, fatty liver disease, respiratory diseases, schizophrenia, brain injury and neurological diseases, ageing, gene/metabolic disorders, extracellular vesicles and mitochondrial dysfunctions, extracellular vesicles therapy, mitochondrial medicine, mitochondrial transplantation, mitochondrial transfer, mitochondrial genome engineering, translational therapy, photo-medicine, infrared light, mitochondria and vision…

Basic scientists working at the bench in the laboratory, physicians treating patients suffering from mitochondrial disorders as well as representatives of companies working on the commercialization of mitochondria-targeted therapies are all welcome to our conference.

I assure anyone who is going to join us in this year's Congress in October 2022 that you won't be disappointed!

We are looking forward to meeting you all!

All our warmest regards.

Prof. Volkmar Weissig
President of the World Mitochondria Society
Midwestern University, USA
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<td>Dhyan Chandra, Roswell Park Comprehensive Cancer Center, USA</td>
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<td>Mitochondria Workshop 2022: How to Evaluate Mitochondria Function?</td>
<td>Naig Gueggen, Mitovac Institute, Centre Hospitalier Universitaire d’Angers, France</td>
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Wednesday, October 26, 2022
Dedicated to Mitochondria Workshop

13h30 – Registration for Workshop and Targeting Mitochondria 2022 Congress

Mitochondria Workshop 2022: How to Evaluate Mitochondria Function?

Session 1: How to evaluate and analyze mitochondria function in 2022

Session 2: Methods for analyzing mitochondrial function: Bioenergetics

15h10 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

18h00 End of the Workshop

18h00 Welcoming Cocktail

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
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

9h00 **Keynote Speech on Mitochondrial Medicine: Present and Future**

**Douglas C. Wallace**, Children's Hospital of Philadelphia, USA

**Session 1: Mitochondrial Dysfunctions and Dynamics in Chronic Diseases**

*Chairs: Volkmar Weissig, Marvin Edeas*

Presentations lengths: 15 minutes + 5 minutes of discussion

9h30 **Regulation of Mitochondrial Signaling in Cardiomyopathy During Sepsis**

Qun Sophia Zang, Loyola University Chicago Health Science Campus, USA

9h50 **The Multiple Facets of the Mitochondria Shaping Protein Opa1 in Adipocytes: From Epigenetic to Tissue Plasticity**

Camilla Bean, University of Padova, Italy

10h10 **Targeting the Mitochondrial Unfolded Protein Response in Prostate Cancer**

Dhyan Chandra, Roswell Park Comprehensive Cancer Center, USA

10h30 - **Coffee Break & Poster Session**
Session 2: Mitochondria Transplantation and Transfer

Chair: James McCully

Presentations lengths: 15 minutes + 5 minutes of discussion

11h10 Recent Advances in Mitochondrial Transplantation Therapy
James McCully, Harvard Medical School Department of Cardiac Surgery Boston Children’s Hospital, USA

11h30 Mitochondrial Transfer via MitoPunch
Michael Teitell, University of California, USA

11h50 Mitochondria Transplantation Between Living Cells
Julia A. Vorholt, ETH Zurich, Switzerland

12h10 Use of Mitochondrial Transplantation for Stroke
Melanie Walker, University of Washington Medical School, USA

12h30 – Lunch Break, Networking & Poster Session

14h00 - Short Oral Presentations

Characterization of Frozen Mitochondria Isolated by Novel Method
Yosif Mahmoud El-Darawish, Luca Science Inc., Japan

Anti-inflammatory Effect of Mitochondria Isolated by a Novel Method in Macrophage-like THP-1 Cells
Keiichi Sakakibara, Luca Science Inc., Japan

Mitochondria Transplantation Improves Maternal Systemic Condition and Placental Circulation in Rat Preeclampsia Model
Yin Hua Zhang, Seoul National University College of Medicine, Korea

Isolation of Intact Mitochondria by Gentle Selective Disruption of Plasma Membranes
Yoshihiro Ohta, Tokyo University of Agriculture and Technology, Japan

Highly-Purified Rapidly Expanding Clones, RECs, are Superior for Functional-Mitochondrial Transfer
Jiahao Yang, Shimane University, Japan

Mitochondrial Transfer for Treating Alzheimer's Disease
Haya Lorberboum-galski, Hebrew University of Jerusalem, Israel

Mitochondria Organelle Transplantation: From Warfighter to Neurodegenerative Disorders
Mark Stephen Kindy, University of South Florida, USA
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Session 3: Extracellular Vesicles & Mitochondria: The Target

Chairs: Eric Barrey, Naig Gueguen

Presentations lengths: 15 minutes + 5 minutes of discussion

14h50 EV-Mitochondria as a Promising Therapeutic for Mitochondrial Dysfunction  
Devika S Manickam, Duquesne University, USA

15h10 The Role of Extracellular Vesicles in Mitochondrial Quality Control Mechanisms  
Marc Germain, Université du Québec à Trois-Rivières, Canada

15h30 – Coffee Break, Networking & Poster Session

16h10 Mitochondrial DNA as Extracellular Vesicle Cargo in Aging and Age-related Conditions  
Nicole Noren Hooten, National Institute on Aging, National Institutes of Health, USA

16h30 The Impact of Mesenchymal Stromal Cell Extracellular Vesicles on Mitochondrial Dysfunction in Acute Respiratory Distress Syndrome  
Anna Krasnodembskaya, Queen's University Belfast, United Kingdom

16h50 Mitochondrial Exosomal miR137-COX6A2 in Schizophrenia  
Ines Khadimallah, Lausanne University Hospital, Switzerland

17h10 - Short Oral Presentations

Presentations lengths: 5 minutes + 2 minutes of discussion

Functional Characterization of Platelet-derived Mitochondria-containing Microparticles in Breast Cancer  
Vanessa Veilleux, Université De Moncton, Canada

The Role of Mitochondria in Inflammatory Signalling to the Brain by Virus-primed Airway Extracellular Vesicles  
Aiste Jekabsone, Lithuanian University of Health Sciences, Lithuania

A Novel Player in Mitochondrial Oxygen Sensing for Cardiopulmonary Disorders  
Aylén M. Santamans, Centro Nacional de Investigaciones Cardiovasculares, Spain

Brucella abortus Triggers BNIP3L-Mediated Mitophagy in Host Infected Cells  
Thierry Arnould, University of Namur, Belgium
SARS-CoV-2 Induces a Delayed Upregulation of Mitochondrial miRNA-4485 In Golden Hamsters  
Christopher Fitzpatrick, Université Paris-Saclay, INRAE, France

Mitochondrial DNA Gene Expression Restricts SARS-COV-2 Replication  
Yentli E. Soto Albrecht, University of Pennsylvania, USA

Mitochondrial Haplogroup H Influences the Risk of Cardiovascular Diseases Development  
Jennifer Adriana Fernández-Rodríguez, Instituto de Investigación Biomédica de A Coruña, Spain

Disrupted Neuron-Astrocyte Mitochondrial Communication in Alzheimer’s Disease  
Luana Naia, Karolinska Institutet, Sweden

Mitochondrial Alterations Manifest Early During Neuronal Differentiation of Down Syndrome-Derived Human iPSCS  
Antonella Izzo, University of Naples Federico II, Italy

A Pro-tumorigenic MDIA2-MIRO1 Axis Controls Mitochondrial Positioning and Function in Cancer-Associated Fibroblasts  
Michael Cangkrama, ETH Zurich, Switzerland

Significance of the Accessory Subunit NDUFB10 in the Proton Pumping Function of Complex I  
Tasnim Arroum, University of Muenster, Germany

18h30 Round Table Discussion with Douglas Wallace, James McCully, Ian Holt and other selected speakers

19h00 End of Congress Day 1

20h30 Meet the Speakers Dinner (for ticket holders only)
Day Two –
Friday, October 28, 2022

8h00 – Welcoming of attendees and welcome coffee
8h25 – Day 2 opening session

Session 4 – Nuclear-Mitochondrial Interactions and their Effect on Longevity and Health

Chair: Miria Ricchetti

Presentations lengths: 15 minutes + 5 minutes of discussion

8h30 Mitochondrial Responses to a Massive Trauma-Determinant of Survival
Marc G. Jeschke, University of Toronto, Canada

8h50 2-Deoxy-D-Glucose Couples Mitochondrial DNA Replication with Mitochondrial Fitness
Ian J. Holt, Biodonostia Health Research Institute, Spain

9h10 Regulation of Mitochondrial DNA Polymerase POLG1 Proteolysis and its Role in the Progeroid Disease Cockayne Syndrome and Physiological Ageing
Miria Ricchetti, Institut Pasteur, France

9h35 Human IPS Derived Cardiomyocytes as Model System to Study Mitochondrial Dynamics in the Aging Heart
Silke Morris, WWU Münster, Germany

9h37 MiCOS Complex and Mitochondria Morphology Changes Across Aging in Cardiac Muscle
Andrea Gail Marshall, Vanderbilt University, USA

Session 5 – Translational Therapies - Focus on Infrared Therapies

Chair: Michael Weber

Presentations lengths: 15 minutes + 5 minutes of discussion

9h45 Mitochondrial and Photo-Medicine - Recent Clinical Applications
Michael Weber, President of European Laser Academy, Germany
10h05 Noninvasive Treatment of Brain Ischemia-Reperfusion Injury with Near Infrared Light: Working Toward Clinical Implementation
Maik Hüttemann, Wayne State University, USA

10h25 Hypomagnetic Field (HMF) and Its Impact on Mitochondrial Functioning
Amit Kumar Nagwani, Adam Mickiewicz University, Poland

10h32 - Coffee Break, Networking & Poster Session

Session 6 – WMS Challenges in the Acceleration of Mitochondrial Medicine
Chair: Ian Holt
Presentations lengths: 15 minutes + 5 minutes of discussion

11h15 Sonlicromanol in Primary Mitochondrial Disease MELAS Spectrum Disorders
Jan Smeitink, Khondrion B.V., Netherlands

11h35 GM1 Oligosaccharide as Mitochondrial Modulator: Implications in Neurological Diseases
Maria Fazzari, University of Milano, Italy

11h55 A Novel PTD-mediated IVT-mRNA Delivery Platform Developed for Protein Replacement Therapy for genetic/metabolic disorders
Lefkothea C. Papadopoulou, Aristotle University of Thessaloniki, Greece

12h15 Mitochondrial Targeting in Aging and Injury
Raghavan Pillai Raju, Medical College of Georgia, USA

12h35 – Lunch Break, Networking & Poster Session
Chair: Egbert Mik

14h00 The Potential of Mitochondrial Genome Engineering
Pedro Silva-Pinheiro, University of Cambridge, United Kingdom

14h20 A Non-canonical Tricarboxylic Acid Cycle Underlies Cellular Identity
Paige Arnold, Memorial Sloan Kettering Cancer Center, USA
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14h40 Unlocking the Potential of the Mammalian Electron Transport Chain  
Jessica Spinelli, UMass Chan Medical School, USA

15h00 Folic Acid Supplementation Improves Drosophila Parkin Loss-of-Function Phenotype and Decreases Mitochondrial Hydrogen Peroxide Levels in Vulnerable Dopaminergic Neurons  
Lori Buhlman, Midwestern University Glendale, USA

15h20 Mitochondria in Retinal Photoreceptors: More than Meets the Eye  
John Ball, National Eye Institute, National Institutes of Health, USA

15h40 – Coffee Break, Networking & Poster Session

16h20 Mitochondria-targeted Iron Chelators for Prognosis, Prevention and the Therapy of Mitochondrial Iron Overload Disorders  
Charareh Pourzand, Mint Therapeutics Ltd, United Kingdom

16h30 Short Oral Presentations

Chairs: Maik Hüttemann, Lori Buhlman

Presentations lengths: 5 minutes + 2 minutes of discussion

Mitochondrial Fatty Acid Oxidation in Drug-Induced Steatosis: Assessment of Causal Relationship with 45 Pharmaceuticals  
Cécile Martel, Mitologics, France

MITER: An Open-source Method for Rendering-based Quantification of Mitochondria-ER Contacts  
Therese Celeste Kichuk, Princeton University, USA

Gene Therapies Targeting Mitochondrial Function for the Treatment of Retinal Degenerations  
Arpad Palfi, Trinity College Dublin, Ireland

Characterisation of the Mitochondrial Genetic Landscape in Abdominal Aortic Aneurysm  
Sakshi Vats, Lund University, Sweden

3D Reconstruction of Mitochondria from Human Heart Failure Structures is Associated with Alterations in CHCHD6 and CHCHD3 Expression  
Zer Vue, Vanderbilt University, USA

Glioblastoma Cells Induce Mitochondrial Biogenesis to Overcome Mitochondrial Damage in Response to Radiotherapy  
Justine Rudner, University of Duisburg-Essen, Germany

Approach for Using Intra-Articular Injection of Mitochondria to Treat Osteoarthritis  
Mercedes Fernandez-Moreno, Instituto de Investigación Biomédica de A Coruña (INIBIC), Spain

The Natural MCU Activator Oleuropein Increases Skeletal Muscle Mitochondrial Energy Metabolism and Performance During Aging and in Adulthood  
Umberto De Marchi, Nestlé Institute of Health Sciences, Switzerland
The Syntetic Heptapeptide Semax Sustains Differentiated Neuroblastoma Improving the Cellular Bioenergetic
Marianna Tomasello, National Research Council of Italy (CNR), Italy

The Potential of Flavonoids to Enhance Mitochondrial Function and Protect Neurons from Degeneration in Alzheimer’s Disease
Maria Ankarcrona, Karolinska Institutet, Sweden

PQQ Stimulation of Mitochondrial Biogenesis Increases Exogenous Coq10 Bioavailability in Skeletal Muscle Cells
Fabio Marcheggiani, Polytechnic University of Marche, Italy

Inhibitors of Fumarylacetoacetate Domain Containing Protein 1 (FAHD1)
Alexander K.H. Weiss, University of Innsbruck, Austria

18h00 Discussion: Mitochondrial Medicine – What’s Next?

18h30 Concluding Remark and Scientific & Innovations Awards

End of Targeting Mitochondria 2022